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Original Communications.

SOME RESULTS OBTAINED FROM A NEW TREATMENT OF GONORRHŒA.

By H. M. Christian, M.D.,
Chief of Genito-Urinary Clinic, University of Pennsylvania, service of Dr. Edward Martin.

In the London *Lancet*, February 27, 1892, a new treatment for acute gonorrhœa is described by Cotes and Slater. The main points of the treatment, in brief, are as follows: The patient first urinates, thereby washing out most of the gonorrhœal discharge from the urethra. With the patient in the recumbent posture, the urethroscope is passed into the urethra as far back as the posterior margin of the area of inflammation, which is usually found to be about four to five inches from the meatus. After the urethra has been thoroughly cleansed and dried by the application of a cotton mop, a cotton-wrapped stilette, charged with a ten-per-cent. solution of nitrate of silver, is carried through the urethroscope, and out at

the distal end into the urethra. Both tube and stilette are then removed simultaneously. At a distance of about two inches from the meatus a fresh cotton mop is applied. In this way a ten-per-cent. solution of nitrate of silver is brought into contact with the entire length of the inflamed urethra. An alkaline mixture or copaiba is given internally, and some simple cleansing injection is used daily.

Some forty cases treated in this manner are reported to have been cured on an average in about twelve days.

The writer employed this treatment in all its details, as given in the *Lancet*, in seven cases, at the University of Pennsylvania Dispensary for Genito-Urinary Diseases.

The urethroscope used was the electric-light tube devised by Dr. W. Otis, of New York.

Case I.—William G., aged thirty-one; engineer; first case; duration, one week; thick purulent discharge; no ardor urinæ; some chordee.

May 5.—Examination through urethroscope shows posterior limit of inflammation at five inches; inflamed, ulcerated, and bleeding mucous membrane; ten-per-cent. solution nitrate of silver applied; ordered daily injections of potassium permanganate, 1 to 6000.

May 6.—Reports considerable bleeding after treatment, lasting twelve hours; frequent and imperative urination; no ardor urinæ; thin yellow discharge.

May 9.—Thin purulent discharge.

May 13.—Very slight discharge.

May 21.—Still some thin mucous discharge; no ardor urinæ or chordee.

May 30.—Thin muco-purulent discharge; given injection of sulphate of zinc and hydrastis.

June 10.—No discharge for several days.

Case II.—J. D., aged twenty-two; tin-roofer; third attack; duration, one day; incubation, three days; thin purulent discharge; marked ardor urinæ and chordee.

August 1.—Examination through tube shows same condition as Case I.; posterior limit of inflammation at about four inches; treatment applied.

August 3.—Bloody discharge from urethra; marked ardor urinæ; frequent and imperative urination.

August 7.—Profuse purulent discharge.

August 12.—Still has moderate discharge; no ardor urinæ; injection zinc and hydrastis.

August 22.—Thin discharge noted only in morning.

Case III.—J. M., aged forty-two; laborer; first case; duration, four days; incubation, six days; thick yellow discharge; slight ardor urinæ and chordee.

August 3.—Ten-per-cent. solution arg. nitr. through urethroscope.

August 4.—Discharge very thin; some ardor urinæ.

August 8.—Considerable discharge.

August 16.—Still thin purulent discharge; injection zinc and hydrastis.

August 24.—No discharge, except "morning drop."

September 1.—Still has "morning drop;" examination shows gleet from bulb.

Case IV.—J. S., aged thirty; laborer; first case; duration, one day; incubation, five days; thin purulent discharge; ardor urinæ and chordee.

August 11.—Urethroscope; ten-per-cent. arg. nitr.

August 18.—Thick purulent discharge.

August 25.—Posterior urethritis; discharge very thin. This case ran into gleet.

Case V.—J. C., aged twenty-nine; carpenter; second case; duration, three days; incubation, five days; thick yellow discharge; no ardor urinæ or chordee.

August 15.—Urethroscope; ten-per-cent. solution arg. nitr.

August 16.—Profuse purulent discharge, mixed with blood; marked ardor urinæ.

August 20.—Frequent and imperative urination.

August 24.—Thin purulent discharge; capsules ol. santal.

September 1.—"Morning drop."

September 18.—No discharge for several days.

Case VI.—J. M., aged twenty-eight; brakeman; first case; duration, four days; incubation, five days; moderate thin purulent discharge.

August 24.—Urethroscope; arg. nitr. application.

September 5.—Thin purulent discharge; posterior urethritis.

September 12.—Mucous discharge from urethra.

September 28.—Still discharge; case developed into gleet.

Case VII.—William M., aged twenty-three; laborer; third case; duration, four days; incubation, three days; thick purulent discharge.

May 7.—Urethroscope; arg. nitr. application.

May 12.—Thick purulent discharge.

May 20.—No better; injection zinc and hydrastis.

June 1.—No discharge for several days; injections continued.

The results in these cases are not entirely

satisfactory, and are certainly not such as would be expected from reading the reports published in the *Lancet*.

None of the cases were cured in twelve days. Two were apparently cured in four weeks, a result that occasionally happens with any line of treatment. Four of the cases developed posterior urethritis, followed by gleet.

On the whole, it would seem to the writer that this method of treating gonorrhœa has no advantages to recommend it over other methods, at the same time having the positive disadvantage of being a very painful mode of treatment.

It only adds one more to the long list of impracticable and visionary methods of treating gonorrhœa so much in vogue at the present day.

USTILAGO MAIDIS.

By Edw. S. Blair, A.B., M.D.

In the domain of obstetrics science has perhaps not aided the accoucheur in his efforts to mitigate the pains of labor and second nature in her work to the same extent and in the variety of ways in which art has assisted.

To the forceps many a suffering woman owes her life and that of her child. To the skilful manipulation of hand and posture, malposition and presentation often yield, and, where only difficulty and danger existed, all has been changed by the skilful hand of the obstetrician. Scientific researches in the field of therapeutic agents have discovered no more valuable drug than ergot. Yet it is probably true that an inestimable amount of harm has been done by the indiscriminate and unwise use of this drug. Many, in their great desire to hasten the termination of labor, knowing of the power of ergot to excite uterine contractions, but forgetting or unheeding the nature of those contractions, have administered the drug too often to the great injury of both mother and child. The tonic contractions which it produces, so different from the distinctly intermittent contractions which nature institutes for the safe and complete emptying of the uterus, have only defeated the end for which it was given, and brought added dangers to mother and child. Scientific research and experimentation have recently brought to the attention of the medical profession a drug which bids fair to take a very important place in the armamentarium of the practical and progressive accoucheur. In a brochure, received within the past twelve months from Parke, Davis & Co., of Detroit, my attention was directed to a preparation of a fluid extract obtained from corn smut, and bearing the scientific name "ustilago maidis." Although the drug has been known for several years, it has received but little attention, and it is but recently that its merits have been investigated to any extent in a clinical way.

After reading the brochure above referred to, I procured a liberal supply of the fluid extract, and began an experimental investigation of the drug, the results of which I record in the following cases:

Case I.—Mrs. T.; primipara; confined June 8, 1892. Was summoned at 6 A.M. On arrival found the pains almost continuous, the patient crying out and very restless. Os almost fully dilated, with membranes still intact. I at once administered about 20 drops of the fluid extract of ustilago maidis, and repeated the dose in thirty minutes. The pains, which had been continuous, became distinctly intermittent, and the suffering much less. In forty-five minutes from the time of giving the first dose of the corn ergot the child was born. The after-birth was slow in coming, and there was some subsequent hemorrhage, which was controlled by appropriate means.

Case II.—Mrs. B.; primipara; confined July 15, 1892. Called at 3.45 P.M.; head on the perineum; gave at once 30 drops of the ustilago; pains were strong and efficient, and the child was born in about thirty minutes. The mother made a good and safe recovery.

Case III.—Mrs. W.; multipara; confined September 11, 1892. Called at 9 A.M.; pains had been severe for an hour or more before my arrival. They were now almost continuous, and the patient had become very nervous, suffering extremely. The os was dilated about the size of a silver dollar, and was thick and hard. I gave about 20 drops of the ergot at 9.15 and a like dose at 9.30. The pains soon became intermittent and the suffering distinctly less. Dilatation went on rapidly, and the birth took place at 9.50, only thirty-five minutes after the first dose of ergot. Good recovery.

Case IV.—Mrs. M.; multipara; confined October 9, 1892. Called at 4 P.M.; pains had been hard for about three hours, confined mostly to the back; os was dilated about the size of a silver dollar, and was soft and dilatable. At about 4.45 I gave ½ drachm of the corn ergot. The pains were now about two minutes apart, but not hard, and apparently doing but little good. They soon increased in strength, and labor was terminated in twenty-five minutes.

Case V.—Mrs. L.; confined October 9,

1892; false conception; fleshy mole; pains quite severe and considerable flowing. After giving a few doses of the corn ergot the pains became weak and finally ceased, but not until the os was sufficiently dilated to easily permit of emptying the uterus of its contents. Good recovery.

CASE VI.—Mrs. P.; multipara; confined October 14, 1892; had light pains during the two preceding days. Was called on the morning of the 14th; pains irregular and light; os about the size of silver quarter dollar, soft, and dilatable. In the latter part of the afternoon the pains became more frequent and harder. At 7 P.M. they were quite severe, and about ten minutes apart; the os dilated to the size of a silver dollar. The patient was weak and bearing the pains badly. At 8.40 P.M. I gave about 4 grains of quinine, and twenty-five minutes later gave ½ drachm of ergot. In half an hour the pains increased in strength, and labor terminated in forty minutes from the giving of the ergot. In the last labor previous to this patient was very sick for twelve hours. Made a good recovery.

CASE VII.—Mrs. C.; confined November 3, 1892; abortion; considerable pain and flowing; os dilated and membranes protruding; gave ½-drachm doses of ustilago. The fœtus was soon expelled sufficiently to be easily delivered, pains ceased, and patient made a good recovery.

CASE VIII.—Mrs. H.; multipara; confined January 3, 1893. Called about 5 P.M.; had light pains all day. For an hour pains have been harder; about ten minutes apart. Gave about 40 drops of the ustilago, and repeated every half-hour for three or four doses. In from thirty to forty-five minutes the pains became more frequent, and continued strong and efficient until delivery, which took place one and a half hours later. Patient recovered better than usual, this being her ninth confinement. She remained in bed but thirty-six hours, then got up and went about her household duties.

CASE IX.—Mrs. F.; primipara; confined January 12, 1893. Patient very nervous; hysterical; pains strong, but progress slow. Gave ½-drachm doses of corn ergot every half-hour till three doses were given. Pains became more endurable and patient less nervous; os now fully dilated, and labor terminated in less than an hour from last dose of ergot.

CASE X.—Mrs. L.; multipara; confined January 14, 1893. Patient always *very* sick in her confinements. Called at 8.15 P.M.; gave at once ½ drachm of corn ergot. The pain was continuous, the patient very nervous, and bore the pains without patience, crying out continually. Repeated the ergot about every thirty minutes. The pains became harder, but for an hour little or no progress was made, and I finally resorted to the use of the forceps.

CASE XI.—Mrs. P.; primipara; confined February 5, 1893. Called at 11 P.M.; very little dilatation; gave ½-drachm doses of ustilago thirty minutes apart for three doses. Pains became weaker and less intermittent. Patient very nervous. Gave chloroform, when the os dilated more rapidly. Labor terminated at 4 A.M.

CASE XII.—Mrs. L.; primipara; confined March 3, 1893. Called about 6 P.M.; very little dilatation; pains ten or fifteen minutes apart. Waited until labor had progressed farther, then commenced the use of ½-drachm doses of the ergot. No improvement in the progress, and was compelled to deliver finally with forceps at 5 A.M.

To recapitulate: In those cases where the pain was continuous the effect of the drug was to make it intermittent and more easily borne. Where natural labor-pains were present and the ergot was administered, the effect seemed to be a strengthening of the contractions and a hastening of the labor to termination. The effects of the drug seemed to be more favorable when given after considerable dilatation had occurred, though it was administered at all stages. After the ninth case negative results were obtained. In the eleventh case the pains seemed more irregular and weaker after administering the ergot. The fluid extract used had at this time been kept about eight months. Whether a fresh article would have changed the results, I cannot say. In no instance did any bad results follow the use of the ergot which, in reason, could be ascribed to its action. Further use of the drug is necessary to determine its actual limits of usefulness.

CORRECTIONVILLE, IOWA, March 20, 1893.

A CASE OF UNUSUAL ACQUIRED TOLERANCE TO NITRO-GLYCERIN.

BY GEORGE EVANS READING, M.D., WOODBURY, N. J.,
Secretary and Treasurer of the Gloucester County Medical Society; Member of the American Medical Association.

IN October, 1891, I was called to see Mrs. Mary B., aged fifty-seven, who was suffering from severe vertigo to such an extent that she was unable to assume the erect posture without falling over unconscious. I elicited a history of such attacks, extending over a period of about two years, and associated with dyspeptic symptoms. She had been treated symptomatically for both the vertigo and dyspepsia,

but had grown steadily worse, the attacks becoming both more frequent and more severe.

This history led me to suspect some common underlying cause, and, together with her age, led me to interrogate the urinary function.

In answer to my questions, I was told that she had been in the habit of getting up nights to pass water, this dating from about the same time as the attacks of vertigo, or perhaps before.

After prescribing for the present attack, I left orders that the urine passed during the next twenty-four hours should be collected, measured, and a sample sent to me.

The family reported next day that the quantity of urine passed was five quarts, and the sample brought to me was as clear as spring-water, and had a specific gravity of only 1002, without any trace of albumin. On this I made the diagnosis of chronic interstitial nephritis, and placed her upon nitro-glycerin (gr. $\frac{1}{100}$) in solution before meals, and chloride of gold and sodium (gr. $\frac{1}{20}$) after meals, with orders to gradually increase the dose of nitro-glycerin as tolerance was established. The dose of gr. $\frac{1}{100}$ produced the typical physiological effect, but this soon wore off, and as the effect of any given dose became less, the dose was increased.

I was then using a two-per-cent. solution obtained from Robert Shoemaker & Co., of Philadelphia, and in the course of three months such a tolerance had been established that the patient was taking an amount of this solution equal to one grain of the pure drug. I then obtained a four-per-cent. solution from the same source, and ordered that the dose be still increased, the same rule being observed,—viz., that marked physiological effect be maintained.

On the exhaustion of this lot of four-per-cent. solution I made arrangements with the superintendent of the Repanno Chemical Company, which has a large nitro-glycerin and dynamite factory a few miles from this city, to supply me with a ten-per-cent. solution of the drug.

The increase of dose was steadily continued, until in less than one year from the time of beginning the patient was taking one teaspoonful of the ten-per-cent. solution at each dose, this being equal to six grains of the pure drug, and this dosage has been maintained up to the present.

Owing to the acrid character of such a concentrated solution, it is necessary to dilute it with from four to six ounces of water before taking, and it was due to this that I have kept the dose at its present size, fearing that any further increase might injure the stomach.

The effect upon the kidneys has been marvellous. From five quarts per diem the urine has decreased to four pints, and from a specific gravity of 1002, with no color and not even a urinary odor, it has increased to a specific gravity of 1018, and is of a natural color.

The attacks of vertigo gradually became less violent and with longer intervals between them, until now she has had none for several months. The indigestion has also practically disappeared, and the patient now attends to her own housework and takes in washing.

The chloride of gold and sodium has also been continued throughout the whole course of treatment, being increased in dose from $\frac{1}{20}$ to $\frac{1}{10}$ grain.

That there are many cases in which this truly gigantic dose of nitro-glycerin can be attained I do not believe; but I put this case on record to emphasize the fact that, to secure the good of which the drug is capable in this disease, it must be pushed to the utmost tolerance of the patient, whatever that dosage may be, and we must not rest content with ordinary doses if we find that they do not produce the effect aimed at.

COLOTOMY.

A Clinical Lecture on Diseases of the Rectum, delivered at the New York Post-Graduate Hospital.

By Charles B. Kelsey, M.D.,
Professor of Diseases of the Rectum in the New York Post-Graduate Medical School.

GENTLEMEN:—I have here a patient I wish you all to see. She is an example of the truth of many things I have been trying to impress upon you. It is a year since she has presented herself at the clinic, which is a significant fact, as she has an artificial anus in the left groin, and I will first explain the case to you, and then we will ask her a few questions as to her condition.

You see she is still a young woman, perhaps twenty-three. When I first saw her, two years ago this month, she was indeed an object of pity. She had just come out of one of our large hospitals, where she had been for a long time under treatment for ulceration of the rectum, without benefit. She was discouraged; in fact, hopeless. She was suffering greatly with pain and loss of sleep; she was emaciated and rapidly losing ground; and being tired of life, had just taken a dose of Paris green. Against her will she was saved from death in this way, and then came under my care.

On examination, I found at the anus, and

extending up into the bowel, a large ulcer. It covered about half the circumference of the rectum, and reached higher than the length of my index finger. Involving the margin of the anus, as it did, it was more than usually painful. It had a hard base, there was a good deal of destruction of tissue in depth, and my first opinion was that it was malignant in character. This, of course, it was not, or the patient would not be here in the condition you see her to-day. Probably it was syphilitic, possibly chancroidal. I do not know. It only proves that even with considerable experience an off-hand diagnosis of the nature of ulceration of the rectum is not always possible. When you can get a good history in connection with the clinical appearance, you can often make a correct diagnosis where examination alone may not be decisive.

For instance, a cancerous and a syphilitic stricture may present the same signs to the touch, but if the patient convinces you that the disease has existed five or six years, the diagnosis is easy.

Supposing the case to be malignant, I still did not extirpate, because the limit of the ulceration could not be reached, because it involved Douglas's cul-de-sac, and because I do not like to extirpate the rectum in women for cancer which has probably involved the peritoneum. I believe with Cripps that where the peritoneum has once become involved the results as to speedy recurrence are bad. This, you will see, has nothing to do with the question of opening the peritoneal cavity. It is simply that the peritoneum in women is much like the base of the bladder in men; when either is involved in cancer of the rectum the case is not a good one for extirpation.

We therefore did a colotomy, and now, two years later, you have a chance to see just how miserable a patient with an artificial anus often, nay, generally, is. When operated upon she weighed one hundred and nineteen pounds. Now she says she weighs one hundred and thirty-nine. I ask her why she wants to see me, and she explains that there is still a little bloody slime escaping from the natural anus once a day only, when she has her evacuation from the groin in the morning. I ask her how the artificial anus acts, and she says it takes her an hour and sometimes two in the morning to be sure that all the fæces have escaped for the day; but that, when once through, she never has any further movement till the next day; that she is then perfectly comfortable, goes where she pleases, and does all her own housework. This is not as favorable a report as we often get. In many cases the bowel will act quite naturally in the morning. She tells me also that she generally has five minutes' warning of the approaching movement, and this is quite common, and is due to the involuntary commencing peristalsis which always is the first step in normal evacuation.

Now let us examine first the rectum and then the artificial anus. She tells us she can no longer wash out the rectum by enemata from below, because the point of the syringe will not enter. The end of the index finger will not enter. There is a firm stricture just at the anus. The little finger will, however, pass this, and then we find a second, firmer and more extensive than the first. This is the natural consequence of the cicatrization of the ulcer, which has been brought about simply by diverting the course of the fæces.

Looking at the artificial anus, you see a small, pointing mucous orifice which you can easily cover with a fifty-cent piece. There is no protrusion, no erosion, no pain. Examine it more closely, and you will find that it has two distinct openings separated by a distinct spur. The upper or proximal one admits the index finger, the lower or distal one only the little finger. You see how impossible it is for fæces to escape from one, cross over the spur, and enter the other; and this is the great point of advantage in the inguinal over the lumbar operation.

A colotomy is successful just in proportion as it does this very thing,—prevents the passage of fæces past the artificial opening. This cannot always be done in the lumbar incision. Bryant fails to do it, he says, in one-quarter of his cases. In the inguinal incision a failure of this kind is unnecessary if the operator understands the operation, for here we have the gut at command. It can be sharply bent upon itself, and a good spur thus formed. In the lumbar incision, on the contrary, the gut cannot be drawn out of the body; it must be opened and stitched where it lies; and there is no chance to form much of a spur. Were it necessary, the gut could be cut across and the distal end invaginated and dropped into the pelvis in the inguinal operation, and the passage of fæces thus absolutely prevented; but there are several objections to this procedure. In the first place, it would be awkward for the patient to drop the wrong end, and yet without a good deal of trouble it is impossible at the time of operation to be perfectly certain which is proximal and which distal. The sigmoid has many curves, and though generally, if caught and opened as it lies, the upper part

will be the proximal, it is not always so, and there may be nothing to indicate that a change has occurred in its natural direction. With the operation which we do here it makes no difference, and when the first evacuation occurs we sometimes find it, though not often, coming from what was intended to be the distal opening. Had this end been invaginated and dropped, the results would be disastrous.

Again, this invagination not only adds just so much to an operation in which speed and the avoidance of shock is often of great importance, but it prevents doing what I always desire to be able to do,—wash out the distal portion of the gut by enemata from the artificial anus downward. In this way all fæces in the gut below the site of the incision can best be removed, and the part kept free from the accumulation of pus and blood, which, in any case of ulceration, will keep up constant pain and tenesmus. Although this patient cannot introduce the syringe by the anus and wash out the bowel in the natural way, she has no difficulty in washing it from the artificial opening downward.

And now we come to the real reason of the patient's visit. The rectum, as she says, no longer troubles her. She thinks she must be nearly well, and she would like to have the artificial anus closed and go back to the old order of things.

Can this be done? Not in this case, though it could in many. The mere closure of the artificial anus here would be an easy matter. It would hardly be necessary, I think, to loosen up the ends of the gut. The spur could be destroyed by a clamp, or in any one of several ways, and after that the opening could be covered by a flap of skin, as I have described fully in my work on the rectum. But the effect of re-establishing the flow of fæces would only be to put the patient back where she was when operated upon. A rectum which has undergone such extensive destruction as this can never again be made a useful one.

In closing an artificial anus of such long standing as this, it must also be remembered that the distal portion of gut soon becomes atrophied from disuse. In this case it is reduced in all probability to a slender tube the size of my finger, and before operating time must be devoted to regaining the normal calibre by means of enemata. Large injections of milk should be made daily and allowed to remain. In this way nutrition is encouraged and the gut is mechanically distended, so that when the fæces are again turned into it its normal function is established.

The question naturally arises, whether, in the light of what we now know, that the ulceration was not malignant, any better treatment could have been followed than the formation of an artificial anus. Would this woman be any better off now had we resected the ulcer? I think not. Resection would have been a much graver operation, and the after-condition no better. To be sure, had she gone through it without accident, she would not have had an artificial anus in the left groin, but she would have had one in the perineum, and one in the perineum might not have been near as good as that she now has. This is a point always to be remembered. By taking a great risk, and doing an operation with a twenty-per-cent. mortality, we may preserve the anus somewhere near where it is placed by nature; but we seldom get any more useful anus than this, for in almost every case of resection of the rectum the result is either stenosis or incontinence. Stenosis you will seldom get after colotomy, and when you do get it it may easily be overcome by dilatation. Stenosis in the perineum after resection is very different, and the firm cicatricial tissue may be very hard to dilate. The result of resection is often a mere fæcal fistula in the perineum, which is very hard to manage, and may in itself be a good cause for a subsequent colotomy.

The opposite condition of incontinence which you get in both operations may be troublesome or may not, depending upon the consistency of the fæces and the regularity with which the bowel can be made to act. It has always seemed to me that a risk of twenty per cent. was a heavy price to pay for the choice between an artificial anus in the perineum or over the sacrum and one like this in the left groin,—that is, of course, in non-malignant disease. In cancer, where we are striving to save life by removal of the disease, the case is different.

But now you have a chance to see for yourselves how much truth there is in the old idea that a patient with an artificial anus might as well be dead as alive; how loathsome they are to themselves and those with whom they come in contact.

Here is a woman fat, strong, happy; able to do whatever she pleases; free from pain. Naturally she would like to have the artificial anus closed; but when I tell her that closing it would be likely to put her back where she was before, her answer is very decided that she will stay as she is. And this is no unusual history. On the contrary, it is the ordinary result. I have many of these cases in the city and around

the country, but you will not often see them here. I caught one in the waiting-room the other day, and tried to get her to come before you; but she assured me she was all right, and had only come to the hospital with a friend. I get reports from them occasionally in one way or another, but seldom any complaints. The operation is not always as satisfactory in malignant as in non-malignant disease, because in the former the cancer is left, and there is apt to be some pain in spite of the artificial anus. The relief is comparative rather than absolute. The great cause of suffering and the great danger to life is removed, it is true, but there is still suffering sometimes from pressure of the growth and involvement of the adjacent parts, if not from the passage of fæces. But even in these cases I have never seen a patient who was not grateful for the amount of relief obtained.

THE DEADLY AND MINOR POISONS OF TOADSTOOLS.

By Charles McIlvaine,
Honorary Member of the Salem County Medical Society, Haddonfield, N. J.

I USE the word toadstool as covering visible fungi and as distinguishing certain forms of fungoid growth from the microscopic. While many of the microscopic fungi number their human victims by the thousands, and are further reaching than co-conspirators of the visible sorts, their efforts are better understood by the medical profession than those belonging to the higher orders of which I shall exclusively write.

To Mr. Julius A. Palmer, of Boston, is due the segregation of the amanita—the aristocrats of the fungoid world—as the only mortal toadstool foe of man. To Dr. J. E. Shadle, of Shenandoah, Pa., must be given credit for describing the actual contact in the human system of atropine with the amanita poison.

The writer was fortunately enabled by these cases of Dr. Shadle to name the toadstools putting in their deadly work, and for the first time positively naming their foil face to face with them to the medical profession (see *Medical and Surgical Reporter*, "Amanitine and its Antidote," McIlvaine, December 12 and 19, 1885).

While atropine had been designated by such a writer as Dr. Gautier, Paris,* as a probable, certainly a theoretic, antidote for toadstool-poisoning, it had never before been called upon to sustain its prognosticated reputation. Here is the best place to say that poisoning by amanitine must be met heroically by the subcutaneous injection of atropine, beginning with $\frac{1}{80}$ grain, and continuing until $\frac{1}{20}$ grain is administered; more, if necessary to save life.

It is unfortunate that the authorized dispensatories and pharmacopœias have settled upon muscarine as the name for this powerful alkaloid. The *Agaricus muscarius* is a member of the family of amanita. Its alkaloid is the base of the well-known fly-poison. Bulbosine, muscarine, are but family derivatives. All possess the same qualities, and should bear the family name,—amanita, amanitine.

Among peoples but little attention would be drawn to the amanita family, did it not so closely resemble the members of the common mushroom clique. To those familiar with both families there is not even a cousinly resemblance; but to those who believe themselves positive in their knowledge of "the only mushrooms fit to eat" there is a dangerous nearness.

In this paradoxical resemblance lies the prominence given to the amanita family, because of its seductive beauty and the fatal mistakes made in eating of its members.

All of the amanita have distinguishing marks. They wear royal robes of certain cut. They are all umbrella-shaped. They all spring from a volva. Fragments of this ruptured sheath are frequently found upon the upper surface of the spread cap. About the base of the stem—generally bulbous—stays the principal part of the envelope from which they have burst. Up the stem, near the top and just under the white gills, is a ring surrounding it. Sometimes this hangs as a plaited skirt about the stem. Sometimes it is merely indicated by a yellow stain.

All of the amanita, being white-spored, have white gills. The common mushroom, being purple-spored, has pinkish gills in youth, which increase in depth of color as the spores ripen to a heavy purplish black. The amanita are choice in their habitat. They live in wooded depths or on the margin of timber-lands. I have never found them in open fields and meadows. On the other hand, the common mushroom is never found in woods. It lives in the open. If these distinctions of growth and habitat could be impressed upon the public there would be no more cases of amanitine-poisoning.

The physician called upon to treat a case of toadstool-poisoning need not wait to query after the variety eaten; he need not wish to see a sample. His first endeavor should be to ascertain the exact *time* elapsing between the

* "Les Champignons," Paris, 1884.

eating of the toadstool and the first feeling of discomfort. If this time is within four or five hours, one of the minor poisons is at work, and rapid relief will be given by the administration of an emetic, followed by one or two moderate doses of sweet oil and whiskey in equal parts. Vinegar is effective as a substitute for oil. If from eight to twelve hours have elapsed, the physician may rest assured that amanitine is present, and should administer $\frac{1}{60}$ grain of atropine at once.

No stomachic troubles follow immediately the eating of the poisonous amanita. Digestion occurs without complaint.

It is possible that indigestible or mildly poisonous toadstools may have been partaken along with the amanita. In this case the time and symptoms would indicate the fact, and they should be eliminated from the system by the means mentioned. The patient should then be watched for the appearance of changes due to the more virulent poison.

One of the first symptoms is a peculiar ashy pallor of the complexion. The complete symptoms are fully and cannot be better given than in a letter from Dr. J. E. Shadle, of Shenandoah, Pa., to the writer, written immediately after his treatment of a family of five persons who were poisoned by eating of the *Amanita vernus* and *Amanita bulbosus*, among several clustered varieties not poisonous. The amanita do not grow in clusters, but singly.

SHENANDOAH, PA., October 26, 1885.

MR. CHAS. MCILVAINE:

MY DEAR SIR,—In compliance with your request, I take pleasure in submitting to your consideration the following report of five cases of toadstool-poisoning which recently came under my observation and treatment:

On Monday, August 31, at 10 A.M., I was hastily called to see a family, consisting of Mr. F., his wife, his mother-in-law, Mrs. R., and his brother-in-law, Thomas R., who, the messenger stated, were having "cramps in the bowels."

Promptly responding to the call, I found them suffering from intense abdominal pains, nausea, vomiting, boneache, and feelings of distress in the *præcordial* region.

Mr. F., twenty-nine years of age, was a miner by occupation, and had led an intemperate life. Mrs. F., twenty-two years of age, was a brunette, possessing a delicate body, and bearing a decided *neurotic* tendency. Mrs. R., forty-five years of age, was a small *nervo-bilious* woman. Thomas R., thirteen years of age, was a youth well developed.

While I was examining these patients, Mrs. B., forty years of age, a neighbor of the family, presented herself, manifesting in a milder degree. the same symptoms. She was a tall, spare woman. Previous to their present attack of illness their general health was good; in none could signs of disease be traced.

Picture to your mind five persons suffering from cholera morbus in its most aggravated form, and you will be enabled to form a pretty correct idea of what I beheld in the Faris residence on Monday morning, August 31.

That five individuals, four being members of one household, should be attacked simultaneously by a similar train of symptoms, naturally gave rise in my mind to a suspicion that something poisonous had been eaten. Upon close inquiry I obtained the following history:

On the afternoon of Sunday, August 30, Mr. F. and Thomas R. were walking through a woods not far distant from their home, and, in wandering from place to place, found clusters of very beautiful toadstools growing abundantly under trees, among which the chestnut predominated.

Attracted by their appearance, and supposing them to be edible, they gathered a large quantity, with the anticipation of having a delicious dish for their Sunday evening meal.

Various other kinds were growing in the same locality, but this particular variety impressed them as being the most inviting. A correct specimen of the *fungus* they had collected having been sent you, I will leave its botanical description to your pen.

At about nine o'clock, five hours after gathering them, Mrs. F. cooked three pints of the toadstools, stewing them in milk, and seasoning with butter, pepper, and salt.

They had dinner at a very early hour on this day, and by the time they had supper all felt exceedingly hungry, in consequence of which they ate quite heartily. Mrs. F. and her brother vied with each other as to the quantity they could eat. In addition to this dish, bread and butter and coffee were served.

Soon after supper the family retired. None experienced the least discomfort until towards daybreak, when considerable distress in the abdominal organs and cerebral disturbance manifested themselves. Prominent among the initial symptoms were foul breath, coated tongue, pain in the stomach, nausea, and a peculiar sickening sensation in the epigastrium. These symptoms gradually increased in severity, and in twelve hours after the ingestion of the poison, when I made my first visit, the

condition of the victims involved great danger. Intense vomiting was present in four, while in Mrs. R.'s case a violent retching seemed to persist.

Gastro-intestinal irritation, followed by a relaxed condition of the bowels, showed itself in about thirty hours after the onset of the more active symptoms. With the appearance of this trouble an insufferable tenesmus developed, producing paroxysms of severe agony. This was particularly true in the case of Mrs. R., whose suffering was so great that it became a formidable symptom to combat. Upon the subsidence of the more severe symptoms, the patients fell into a state of extreme prostration, accompanied by stupor and cold extremities. In the mother, son, and daughter this was profoundly marked. They were completely indifferent to persons and things around them, as well as to their own suffering.

As the symptoms increased in violence, Thos. R. advanced into a state of coma, and Mrs. F. into coma vigil, and remained so for about twelve hours prior to death. The face had a shrunken and wrinkled appearance, the eyes were sunken, the skin was dusky, and the surface of the body was dry and cold to the touch. The pulse, a number of hours before death, was imperceptible at the wrist, and the heart-sounds were scarcely perceived by auscultation.

The pulse in all cases was notably affected, ranging from 120 to 140 per minute. In character it was soft and compressible; intermittent at intervals.

There was a distinct rise of temperature; the thermometer in the axilla registered as much as 140° F.

A mild form of delirium was an occasional event. In the case of Mrs. F. it formed an important element.

Respecting the special senses, it is well to mention that sight was peculiarly affected. Notwithstanding the fact that the pupils responded kindly to the action of the light, an unpleasant sensation of blindness frequently appeared, and continued for a few minutes.

In spite of all that was done to counteract its ravages, the effects of the poison were so extremely deadly that a fatal issue was the result in two cases. Thomas R. died in fifty-six and Mrs. F. in sixty-three hours after the ingestion of the toadstools.

Treatment.—The treatment instituted was mainly symptomatic.

Fearing that undigested particles of toadstools might still be lying in the gastro-intestinal tract, to Mrs. R., who had not freely vomited, an emetic was administered, and to the rest a mild purge.

An intense thirst and a burning sensation being present in the mouth, throat, and stomach, small pieces of cracked ice were freely used with a view to allaying it.

For the gastro-intestinal irritation I prescribed with satisfactory results the following:

℞ Bismuth subnit., ʒv;
Creosote, gtt. xv;
Mucil. acaciæ, fʒi;
Aq. menth. pip., q.s. ad fʒiii. M.
Sig.—Teaspoonful every one or two hours.

⅛ grain of morph. sulph. was administered hypodermically to alleviate as much as possible the abdominal suffering.

The impending exhaustion and the failing heart's action I endeavored to combat with a free administration of alcoholic stimulants in combination with moderate doses of tincture of digitalis both by the mouth and under the skin.

In order to invite the circulation of the blood to the ice-cold surface of the body, heated bricks and bottles filled with hot water were placed in bed around the patients.

Analyzing each symptom as it arose, and carefully observing the effects of the poison on the system, I formed the opinion that the toxic element contained in the noxious fungus eaten by these people was narcotic in its nature and spent its force on the nerve-centres, especially selecting the one governing the function of respiration and the action of the heart.

Acting upon this conclusion, I began, in the early part of my treatment, subcutaneous injections of sulphate of atropine in frequently-repeated doses, ranging from $\frac{1}{180}$ to $\frac{1}{60}$ grain. The injections invariably were followed by a perceptible improvement in the patient; the heart's action became stronger, the pulse returned at the wrist, and the respiration increased in depth and fulness.

Through the agency of this remedy, supported by the other measures adopted, three (or sixty per cent.) of the patients recovered.

The lessons I draw from this experience are:

1. The poisoning produced by this variety of toadstools is slow in manifesting its effects.

2. That it destroys life by a process of asthenia.

3. That in atropine we have an antidote, and it should be pushed heroically from the earliest inception of the action of the poison.

I have the honor to remain yours very respectfully, J. E. SHADLE, M.D.

In reply to the queries, Was atropine administered in all the cases? and What was the total amount administered to each? Dr. Shadle responded as follows:

SHENANDOAH, PA., October 29, 1885.

MY DEAR MR. MCILVAINE:

Yours of the 27th I have received. The two questions you ask me therein I see are very important, and they should be answered as fully as possible. I am sorry I overlooked the matter in my report.

Before attempting an answer, it is well for me to note right here that Mrs. B., the neighbor, did not eat very much of the toadstool stew; Mrs. R. and Mr. F. each ate about the same quantity,—from one and one-half to two platefuls. This is according to Faris's statement. But the two fatal cases—Thomas R. and Mrs. F.—tried to see which could eat the most, and consequently got their full share of the poison. The cat mentioned before had about a tablespoonful of the broth, and they tell me she was very sick. Whether or not she died is not known.

Now as to the treatment by atropine, I think I can approximate a pretty correct statement in reply to your queries. Not knowing that atropine was considered an antidote, I began its employment in the treatment of these cases from the physiological knowledge I had of the drug relative to its action in other diseases in which there was heart-failure and embarrassed respiration.

When I saw the U. S. Dispensatory suggested it, I of course felt it my duty to use it, as I could find nowhere anything else mentioned as an antidote. I feel convinced that it was by means of the atropine that I saved three of the five patients. Why do I think so? Because whenever I would administer the remedy the patient rallied, the pulse returned at the wrist, the heart-sounds became stronger, and the respiration increased in strength and fulness. What more conclusive evidence do I want than this to show as to how the agent was acting?

When I first saw the patients—twelve hours after the ingestion of the poison—their symptoms were alike, one suffering as much as the other (August 31). I began the use of the alkaloid in the evening of the same day, when I saw the powers of life giving way, the heart failing, and the respiration becoming shallow. It was used in all the cases as follows:

Mrs. B., $\frac{1}{180}$, $\frac{1}{90}$, $\frac{1}{90}$, or $\frac{5}{180}$, or $\frac{1}{36}$ gr.
Mr. F., $\frac{1}{180}$, $\frac{1}{90}$, $\frac{1}{90}$, $\frac{1}{90}$, or $\frac{7}{180}$ gr.
Mrs. R., $\frac{1}{180}$, $\frac{1}{90}$, $\frac{1}{90}$, $\frac{1}{90}$, or $\frac{7}{180}$ gr.
Thos. R., $\frac{1}{180}$, $\frac{1}{90}$, $\frac{1}{90}$, $\frac{1}{90}$, $\frac{1}{90}$, or $\frac{9}{180}$, or $\frac{1}{20}$ gr.
Mrs. F., $\frac{1}{180}$, $\frac{1}{90}$, $\frac{1}{90}$, $\frac{1}{90}$, $\frac{1}{90}$, or $\frac{9}{180}$, or $\frac{1}{20}$ gr.

In accordance with the above formulæ the drug was administered. I visited the patients at intervals of six or eight hours, and at each visitation they received an injection in the doses above mentioned. From this we see that in all Mrs. B. received gr. $\frac{1}{36}$ of atropine; Mr. F. received gr. $\frac{7}{180}$ of atropine; Mrs. R. received gr. $\frac{7}{180}$ of atropine; Thos R. (fatal) received gr. $\frac{1}{20}$ of atropine; Mrs. F. (fatal) received gr. $\frac{1}{20}$ of atropine.

The alkaloid failing to save the two that died, I think can be attributed to one of two causes, or probably both:

1. That the use of atropine was begun too late and not used heroically enough.

2. That so much of the poison was taken up by the system in these cases that it became too virulent to counteract.

From the history of the cases, I know they ate by far the largest quantity. My opinion leans towards the first probable cause I have mentioned.

Another fact worth stating here is that the pupils never became affected by the administration of these doses.

Hoping this will make the matter satisfactory, I remain yours truly,

J. E. SHADLE.

The report of Dr. Shadle corroborates all former observations of the poisoning by amanita, in that the poison does not manifest itself until from eight to fifteen hours after ingestion, and the peculiar hue of the skin as one of its marked symptoms.

In relation to the latter, Mr. Palmer writes,—

"The absorption of the poison from the amanita may take place not only by ingestion, but by contact with the skin, as through the hollow palm of the hand or arm; by the lungs, as I have proven by personal experiments made upon myself. In such a case the patient has all of the symptoms of having eaten of the mushrooms, *even to a peculiar leaden- or ash-colored complexion.*"

Many of the amanita are not only nutritious, but delicious. Of the nearly forty varieties, not over eight are known to be deadly.

In testing, by carefully eating of over four hundred varieties of toadstools, for their edible or non-edible qualities, by smelling, by absorption of the juice while dissecting, I have frequently felt and seen on my own face symptoms of amanitine-poisoning. My experiments upon

dogs show that injections of minute quantities of an infusion in water or alcohol of any one of the poisonous amanita is fatal in from twelve to twenty hours, but that the fatal effects may be arrested at any but the final stage by varied doses of atropine. Similar results will obtain by the use of amanitine as an antidote for atropine. The difficulty I have encountered is in the separation of the alkaloid and obtaining solutions of known strength.

It should be borne in mind that the exhalations of those poisoned by amanitine are highly poisonous, and the urine as deadly up to the tenth or twelfth dilution, by passage through the human system, as the original poison itself.

Dr. Edward Jacob Forster, Boston, Mass., in an excellent monograph, entitled "Mushrooms and Mushroom-Poisoning," read before the annual meeting of the Massachusetts Medical Society, June 11, 1890, says, "The treatment by atropine is based upon a perfect antagonism which exists between this drug and the poison of the amanitas, which has been separated by Professor Schmiedelberg and named muscarine. The poison has been separated by others and variously named, according to the variety from which it was obtained. The merest trace of this alkaloid will arrest the pulsation of a frog's heart, and even after four hours Lauder Brunton states he has caused it to pulsate again by a minute quantity of atropine being brought in contact with the organ. This and other experiments showing the antagonism between these two poisons have been repeated by Professor H. P. Bowditch at the Harvard Medical School. It acts as well upon mammals as upon frogs."

The length to which this article has grown defers the relation of my experience with the minor poisons of toadstools to a future paper.

THE OPIUM AND SALINE TREATMENT OF PERITONITIS.

By M. H. Fussell, M.D.,
Instructor in Clinical Medicine, University of Pennsylvania.

ALL authors of to-day agree that idiopathic peritonitis is rare. A few contend that it does not exist, but that general peritonitis is always a symptom. In my experience I have not met with a case which could not be traced to some previous lesion. Since peritonitis is usually a symptom of some previous disease, no set treatment will answer for all cases. To give salines to a patient who is suffering from a peritonitis caused by an incarcerated hernia would be as wide of the mark as to benumb a patient with opium who has a peritonitis from impaction of the bowels. It is necessary that a diagnosis of the cause be made before the case can be rationally treated. With that phase of the question I do not propose to deal. The great number of cases of peritonitis presenting themselves to the general practitioner, however, have as their cause some lesion insignificant in itself and entirely unaffected by medicinal treatment, and the disease presents itself simply as a case of peritonitis. The inflammation must be controlled before the cause can be reached. How best to gain that end is the question which confronts us all, and which I approach with becoming humility. When I left the halls of the University of Pennsylvania he who suggested any but the opium treatment was sneered at. Since that time the saline treatment has arisen, and has followers who declare that to give opium is death to the patient, and to omit purgation with salines is equally reprehensible. Both these treatments have able supporters, who give no quarter and desire none. I suffered from a severe attack of peritonitis, and recovered under strict opium treatment. Moreover, as a student, I was thoroughly imbued with the belief that this was the only rational treatment for peritonitis, hence I feel much like a deserter in suggesting any other method of treatment. My first cases of peritonitis were given opium until they were narcotized, were passably comfortable, and generally died. Nevertheless, I could never bring myself to the state of mind in which I could omit opium. Hence, in my later cases, I have constantly used a combination of salines and opium, and with the happiest results.

The following cases, taken at random from my notes, will illustrate what has been by far the most satisfactory method of dealing with the cases of which I speak. They all corresponded to the type of a general peritonitis, the cause of which could not be found at the time, or, if detected, could not be remedied.

Case I.—Mrs. N., aged fifty-two, was attacked with symptoms of dysentery. She had frequent stools, and passed some blood and mucus. These symptoms were controlled by small doses of opium. Suddenly, on the evening of July 19, 1891, the patient was seized with excruciating pain in the ileo-cæcal region. This was controlled by a hypodermic injection of morphine. The next morning the pain was still severe, and the whole belly was tense and exquisitely tender; the pulse was quick and hard;

the woman was suffering much pain. She was ordered ½ ounce of Epsom salts dissolved in a half-glass of water, and a tablespoonful of this was given every half-hour. A hypodermic injection of morphine was administered to relieve the pain. The general condition of the patient was bad. There was considerable tenderness over the ileo-cæcal region, with resistance, while the whole belly was tense and tender. The patient lay on her back, with her thighs flexed. By the time the last of the half-ounce of saline was administered there had been two profuse watery stools. The belly became less tense and markedly less tender. The treatment after this was morphine hypodermically sufficient to keep the patient quiet, and salines sufficient to cause daily a large watery stool. Gradually the general inflammation decreased. The cause of peritonitis was demonstrated in a palpable, tender tumor in the ileo-cæcal region. The woman made a complete recovery.

CASE II.—Mrs. R. was seen in consultation. Her menses had been missed for two months. Three days before she came under observation she was seized with severe pain in the abdomen, simulating labor-pains. Shortly the whole belly became tense and very tender. On my visit a tumor was found, involving the right Fallopian tube. This was probably the cause of the trouble. The whole abdomen was distended and exquisitely tender, the patient screaming at the slightest touch. The bowels were constipated. As there was a specific history, and as the woman was pregnant and in fairly good condition, the treatment by hypodermic injections of morphine sufficient to control pain, and salines sufficient to cause large watery stools, was advised as the best means of combating the trouble. Laparotomy was decided against because of pregnancy and a specific history. This patient was afterwards seen by Professor B. C. Hirst, and the treatment continued. The woman made an excellent recovery.

CASE III.—Harry R. was seized with severe "cramps" while at work in a mill. On examination, a tender swelling was found in the ileo-cæcal region. The patient lay with the knees drawn up and the whole belly tense and sensitive. A hypodermic injection of morphine was given and salines ordered. On the first movement of the bowels, which was profuse and watery, there was great relief. The general tenderness speedily disappeared, but there remained in the ileo-cæcal region a decided tumor, which was demonstrable for two weeks. The patient has since gone through a similar attack, and is at present suffering from a third. It is probably a case of recurrent appendicitis, complicated, on at least two occasions, by a general peritonitis. A laparotomy will probably be required before definite cure.

These three cases—taken at random from a number of records which I have—well illustrate the set of cases to which I refer. Two were probably appendicitis, the third was certainly Fallopian disease, but in all three the one condition threatening life was the general peritonitis. I would repeat that this method of treatment will no more than any other supplant a rational operative treatment, but it is superior in my hands to the opium treatment alone. I have had no experience with a pure saline treatment, but to my mind the intense pain *always* demands an opiate. A combination of the two methods secures comfort to the patient from the opiate and depletion of the inflamed peritoneum from the saline. The opium is best administered hypodermically, since thus less of the drug is used. The saline I have always administered in a saturated solution, a half-ounce of this being given half-hourly. Strict rest, of course, must be ordered, and a liquid diet prescribed.

These means may be supplemented by leeching when the case is seen early, and by application of a light poultice to the abdomen, or a cloth wrung out of hot water and covered with oiled silk.

In conclusion, I would state that the means best suited in my hands to the treatment of peritonitis are,—

1. Diagnosis as to the cause.
2. Removal of the cause where practicable.
3. Hypodermic injections of morphine sufficient to control pain.
4. Administration of a concentrated saline solution until free watery stools are produced.
5. Leeching and poulticing.

PRESCRIPTION FOR DIARRHŒA.

According to *L'Union Médicale* for November 1892, MENCKE employs the following prescription:

℞ Powdered resorcin, gr. xv;
Paregoric, ♏xv;
Distilled water, ℥iii;
Syrup, ℥ii.
A dessertspoonful of this may be taken every two hours.

In the case of children it is well to diminish the quantity of resorcin and of the paregoric, or a coffeespoonful of this mixture may be given every two hours.

The Therapeutic Gazette

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Leading Articles.

WHAT IS THE VALUE OF THE SALICYLATES IN RHEUMATISM?

MANY members of the profession will at once answer the question which heads this editorial in favor of salicylates. Yet there are others, who are able to quote large statistics and wide clinical experience, who will state that they believe that the general confidence in the value of the salicylates in acute articular rheumatism is not justified by the results which are obtained from its administration.

Probably the correct solution of this mooted point lies in the subdivision of the action of salicylates on the various parts of the body. Under such circumstances there is no doubt that the universal experience has been that salicylic acid or its salts produces a subsidence of the pain and swelling in the joints which are affected by acute articular rheumatism, and that this result may be accomplished after but three or four doses, or certainly by the third or fourth day. On the other hand, the Collective Investigation Committee of the British Medical Association found that the average duration of pain was a little over ten days, while a collection made from the cases treated in the London Hospital barely exceeded five days. Be this as it may, the results of both these investigations, which aggregated something like twelve hundred cases, showed that the drugs caused an amelioration of the joint-symptoms. Similarly, salicylic acid produces reduction of the fever, and in many instances the febrile process, under its influence, only persists for two or three days. On the other hand, it must be remembered that every now and then we meet with cases in which the joint-symptoms and the fever resist all doses of the salicylates which we may give within the limits of safety.

So far, then, we may consider that on general principles two of the important symptoms of acute articular rheumatism are relieved.

On the other hand, there are certain complications which are so frequent and occur so early that they may be considered as symptoms or a distinct part of the disease in which salicylic acid probably effects but little,—namely, the appearance of cardiac manifestations of the action of the rheumatic poison. Of course it is true that salicylic acid, by shortening an attack of rheumatism, in that way indirectly protects the heart; but, at the same time, there is no evidence that it protects this organ from the actual presence of the disease process. In other words, it may prevent cardiac disease indirectly, but its administration in no way preserves the cardiac apparatus intact while the febrile symptoms last. This has been pointed out in a number of the standard works on medicine, and should be universally recognized by the profession, even though all its members may not be willing to admit that the statement is entirely true. Thus, in Stewart's article in the "System of Therapeutics," he points out that Hood, of London, in the treatment of 2200 cases of acute articular rheumatism appearing in both sexes under thirty-six years of age, noticed that there were a very large number of instances in which cardiac disease was produced. Thus, of 828 cases treated without salicylates, 500 had cardiac disease, whereas in 328 cases treated with salicylates, 190 had cardiac disease; or, again, of 360 cases treated with salicylates, 241 had complications, and in another series 316 suffered from cardiac disease out of a total of 515. In other words, in the cases treated by salicylates the aggregate of

cardiac complications was somewhat over sixty per cent., while those who were treated by other measures had cardiac complications in a little less than sixty per cent. It is, therefore, evident that the salicylic compounds are no more effective in avoiding these unfortunate manifestations of the rheumatic poison than are the various other modes of treatment. This point is emphasized, too, by the fact that the percentage of cardiac disease in cases treated by the salicylates is about the general percentage of cases,—namely, between fifty and sixty per cent. It is also true that relapses seem to occur more frequently under the salicylates than under the older methods of treatment; perhaps because, when the older methods are used, the disease runs its course, or, as it were, exhausts itself, whereas the salicylates may alter its course before the system is thoroughly rid of the rheumatic poison.

To quote Stewart again: "Garrett has shown that the salicylates seem to have more effect upon the hyperæmic group of symptoms, as, for example, those manifested about a joint, than upon the fibrous symptoms, as, for example, those seen in endocarditis."

There are other points which might be discussed in regard to the value of salicylic acid in rheumatism, but these are, after all, the most important. In view of the recent studies of Haig and those of other investigators who have not been so thorough in their methods of research, we cannot doubt that this class of compounds, uniting with the uric acid, produce salicyluric acid, which is readily eliminated, and so directly or indirectly results in the amelioration of the rheumatic symptoms.

It is hardly in place in this editorial to consider the disadvantages which salicylates possess, so far as their untoward symptoms are concerned. That they are capable of producing disagreeable symptoms every one knows, but they probably do not cause difficulties to arise any more frequently than other drugs possessing medicinal power of great value. There are instances of very severe symptoms, but, after all, these have been few and far between. Perhaps the most noteworthy of these was the case reported within the last few years in the London *Practitioner*, where the use of what might be called a very moderate dose of the salicylates produced petechial eruption and retinal hemorrhages, which latter resulted not only in temporary, but permanent blindness.

There are but two points in regard to the use of salicylates in rheumatism which, we think, should be particularly emphasized, and these are, 1, that the physician, after once deciding to administer these remedies, should give them in large doses or not at all,—that is, to use no less than 40 to 80 grains a day; 2, that if, after administering the drugs in this way, no amelioration of the symptoms of any note has occurred at the end of four or five days, that it is useless to continue this line of treatment, as little good will be exercised over the rheumatic process, and much harm will be done by saturating the patient with such irritants to the kidneys and stomach as are the class of the salicylates.

THE INSTILLATION TREATMENT OF GENITO-URINARY DISEASES.

THE term instillation, as used in genito-urinary surgery, implies the local application of a medicinal solution to inflamed spots of the urethra or bladder by means of an injecting syringe with a long nozzle, usually eight inches or more in length.

Lallemand, in the early part of the present century, wrote enthusiastically upon the curative effect of solid nitrate of silver applied to chronically inflamed areas of the urethra, particularly in the prostatic urethra, by means of an instrument termed the *porte-caustique*. He reported many obstinate cases as cured by this treatment. These applications became extremely popular, but ultimately fell into disuse, probably owing to the fact that insufficient knowledge of the relations between symptomatology and pathology led to the application of the remedy in unsuitable cases, and did more harm than good. Aside from the direct inflammatory symptoms excited by Lallemand's applications, it was alleged that other and more serious results followed. Thus one distinguished surgeon of the time asserted that Lallemand was responsible for more eunuchs than were the requirements of the Turkish harems, the *porte-caustique* occasioning sterility by inflammatory obliteration of the ejaculatory ducts.

After the practical abandonment of the application of the solid stick of silver nitrate, attempts were made to expose diseased spots by means of the endoscope, and to apply medication by pledgets of cotton wet in the required solutions.

The recent ingenious electric urethroscopes, and particularly those of Otis and Leiter, have rendered this an easy, safe, and efficient treatment in chronically inflamed patches of the anterior urethra. In the treatment of disease of the posterior urethra, however, the introduction of a straight tube often inflicts so much damage

to what is termed the fixed curve of the urethra, that the beneficial effects of applications are more than counterbalanced by subsequent traumatic inflammation. It is particularly in these cases—*i.e.*, cases of chronic inflammation of the posterior urethra and the neck of the bladder—that the instillator is most valuable.

Guyon (*International Medical Magazine*, vol. ii., No. 3) claims the credit of introducing this instrument and formulating the method of treatment. The apparatus he employs is a flexible, olive-tipped catheter, with a minute opening at its bulbous end; the other end receives the nozzle of a syringe. The syringe employed is similar to that used in hypodermic medication. It should be large enough to hold about two teaspoonfuls. The nozzle has a thread fitting into the catheter, and the handle, instead of pushing in, is made to turn in the barrel, each half-turn forcing out a drop of solution from the bulbous end of the bougie when this instrument and the syringe are fitted together.

Guyon commends the use of this instrument for diseases of the anterior urethra, but in such cases the majority of surgeons prefer to employ the electric endoscope. In applying instillations to the posterior urethra, he states that some urine should be allowed to remain in the bladder, unless the neck of this viscus is to be medicated, in which case the patient should urinate immediately before the application. He introduces the bulb of the soft instrument until the resistance of the compressor urethræ muscle is felt; the bulb is pushed a little beyond this, and the syringe is attached and the injection made. Afterwards the bougie is withdrawn.

He employs two classes of substances,—namely, those intended to prevent pain, such as morphine and cocaine; and those designed to modify the mucous membrane. For modifying the mucous membrane, nitrate of silver is the remedy of choice. It is employed in solutions of from two- to ten-per-cent. strength. Corrosive sublimate is employed in the strengths of 1 to 5000 to 1 to 10,000. It should be dissolved in boiled water.

The indications for the instillation treatment are afforded particularly in cases of urethrocystitis; 15 to 20 drops of a two-per-cent. solution of nitrate of silver should be used every two days. After twelve to fifteen instillations the cases are mostly cured. If not, treatment is stopped for two or three weeks; then a new series of stronger treatments is instituted. In some cases the symptoms are aggravated, and here it is often found that the inflammation is tubercular in nature.

The instillations are particularly valuable in acute and chronic cystitis. Frequent urination, pain, and the symptoms due to gonorrhœal cystitis yield more quickly to instillation than to any other treatment. The bladder should be entirely emptied before the injection is made, and from 20 to 30 drops of a two-per-cent. solution should be used. The treatment should be repeated every two or three days. At first there may be hæmaturia and aggravation of symptoms, but after two or three treatments relief is marked and cure rapidly follows. In the chronic forms of cystitis irrigation may be used in addition to the local treatment; but in all extremely painful cases instillation treatment will yield the best results.

In tubercular troubles nitrate of silver is dangerous, greatly aggravating the symptoms. Here 20 to 30 drops of bichloride of mercury of the strength of 1 to 5000 at first, and increased to the strength of 1 to 2000, the quantity of the injection being proportionately lessened, will sometimes be followed by satisfactory results. Neoplasms always contraindicate instillations.

According to Guyon, nitrate of silver and bichloride of mercury are practically the only remedies to be used. Other surgeons, however, as Ulzmann, and Keyes, Letzell, and Finger, obtain satisfactory results from sulphate of copper, used in the strength of two- to ten-per-cent. sulphate of zinc, thalline, ichthyol, and a number of other remedies. In certain chronic cases, instillation of 6 to 8 drops of iodine and carbolic acid, equal parts of each, will be followed by rapid improvement. The nitrate of silver is particularly indicated in gonorrhœal cases, as pointed out by Guyon; its employment in the cases of acute posterior urethritis, accompanied by perineal pain, frequent urination, tenesmus, and the passage of blood, will sometimes bring about a more rapid relief of suffering than opium suppositories, hot baths, or all the other means of treatment in common use.

The bulbous bougie referred to by Guyon is not the most popular instrument. Ulzmann's long, cylindrical rubber catheter, provided with an almost capillary canal, attached to a hypodermic syringe, or Keyes's modification of this instrument, are those commonly employed. The lubricant used in these cases should be glycerin, since cosmoline or oil may so coat the urethra that the medicament is not brought in contact with the mucous membrane.

The popularizing of the endoscope for the treatment of granular patches of the anterior urethra and a general recognition of the indi-

cations for the use of instillations have been responsible for the cure of more cases of chronic urethritis than all other modern methods combined.

TUBERCULAR IRITIS AND ITS TREATMENT.

TUBERCULOSIS of the iris, as generally described, occurs in the form of miliary growths (disseminated tuberculosis), or as a single neoplasm (solitary tubercle). The disseminated variety, consisting of the development of small grayish, translucent bodies, may be confounded, so far as its clinical characteristics are concerned, with nodular formations in the iris of non-tubercular origin,—the granulomata of some authors,—or with the deposits which have been occasionally seen in leukæmia, or have arisen under the inflammatory action caused by a foreign body entering the anterior chamber. Finally, it may be difficult to differentiate them from syphilitic papules, although the latter are crossed by blood-vessels, while in tubercles these are absent or but sparsely present.

The absolute diagnosis of tubercle of the iris would seem to depend upon bacteriological examination and the demonstration of the bacilli characteristic of the disease, or upon inoculation experiments performed on rabbits' eyes. Some recent communications, however, maintain that the relation of tuberculosis to disease of the iris is much more common than we have been led to suppose, and the crucial test of finding the specific product of tubercle is not necessary to establish the identity of the disease, because in a number of instances, in the absence of the bacilli, the subsequent conduct of the affection, as well as general examination, have cleared away all reasonable doubt as to the nature of the morbid process in the iris. At least one author is willing to ascribe a tubercular origin to many examples of chronic iritis, with moderate or severe inflammatory manifestations, accompanied by the deposition of precipitates on the posterior layer of the cornea.

Disregarding for the moment those cases which are of doubtful character, and returning to such forms, either disseminated or solitary, which with reasonable certainty may be diagnosticated tubercular, the important problem for solution is the best method of treatment. Some years ago Dr. Hill Griffith ("Transactions of the Ophthalmological Society of the United Kingdom," vol. x. p. 84), with this point in view, analyzed thirty-two cases of tuberculosis of the iris gathered from the literature, some of which were recorded as primary, although the accuracy of this designation is not entirely free from objection, because, as Fuchs maintains, although tuberculosis experimentally induced in animals is primary, when it occurs in the iris of man it is usually secondary,—that is, it arises from a tuberculous focus elsewhere in the body; a focus, moreover, which may be found, for example, in the glands, or may be inferred to exist in the intestinal canal, lungs, or bones. In Griffith's list there were three cases in which no operation was done, the first two dying of general miliary tuberculosis three and five weeks respectively after the onset of the eye-affection, and the third with symptoms of tubercular meningitis nine weeks after the beginning of the disease. Two cases, in spite of enucleation, died with symptoms of brain-disease after the removal of the eye, but these are the only two deaths among twenty-seven cases in which the bulb was enucleated. Griffith further shows that iridectomy has not been productive of favorable results; in eight cases in which this operation was tried enucleation was required later on. Hence it is evident that if an operation is to be undertaken for tubercular disease of the iris, which, as he expresses it, is justified when the eye is practically lost, when there is danger of sympathetic ophthalmitis, or when the affection is rapidly progressive, this operation should consist of enucleation and not of iridectomy.

When it comes to dealing with cases in which the diagnosis is doubtful, or there is no tendency to speedy increase, or, even if the nature of the malady is reasonably certain, the vision is not lost, and its manifestations are moderate, operation should be deferred and an expectant plan of treatment pursued. Naturally the ordinary hygienic measures suited to tuberculosis suggest themselves; and among the medicinal agents, if the report of C. Quint (*Centralblatt f. Prakt. Augenheilkunde*, March, 1893) is to be trusted, creosote should find a prominent place. This observer, who is of the opinion that many cases of chronic iritis are really tubercular in nature, reports two examples of probable tubercular iritis greatly benefited by the exhibition of creosote. In the first case, lasting three-quarters of a year in spite of various remedies (mercury, iodide of potassium, and salicylic acid), an iridectomy was performed, and the excised piece of iris planted in the anterior chamber of a rabbit's eye, resulting in three weeks in typical iris tuberculosis. The patient was then placed upon creosote in pills, beginning with .3 gramme (5 grains), and later .75 gramme (12 grains) p. d. After the use of 10

grammes (150 grains) during two weeks, improvement began; four weeks later, 30 grammes (450 grains) having been taken, improvement was marked, and at the end of five months the eyes were quiet, and vision in R. ⅓ and in L. 1. At the time of the report no relapse had taken place.

The second case, which occurred in a woman aged fifty-two years, presented appearances similar to the first one,—namely, yellowish deposits in the posterior layer of the cornea, which decidedly increased as time went on, moderate iritis, and, finally, intense streaky opacity of the cornea, the visual acuity sinking to the perception of the movements of the hand at three metres. The increase of the disease occurred in spite of the administration of mercury and other remedies. Therefore creosote was exhibited, and at the end of four weeks, during which time twenty-five grammes (375 grains) of the drug had been consumed, a very favorable change took place. The eye was nearly free from irritation, the deposits thinner and diminished in number, and the blood-vessels shrunken. At the time of writing, three-quarters of a year after the beginning of the disease and one-half year after the creosote treatment had been begun, the eye had been for a long time free from inflammatory symptoms, and the acuity of sight had increased to ¼.

The reporter attributes the favorable result in these two cases to the creosote. In one tubercular iritis was proven by the inoculation experiment; in the other Quint believes it undoubtedly to have been present, in spite of the absence of experimental or other exact evidence, on account of the symptoms, which were closely analogous to those in his first case. He records the two cases and this experience with creosote in the hope that others may be induced to try the remedy, and may also report their results. In regard to the first case, if the inoculation experiment was carefully performed, there seems little doubt that the disease was truly tubercular, and as all manner of other remedies had first been tried and had failed, it is fair to attribute the success to the creosote. In the second case there may be reasonable doubt of the real tubercular nature of the malady, but none the less it also first showed evidence of improvement under the influence of creosote administrations, and this after other remedies had been faithfully tried. The use of this drug in pulmonary tuberculosis has attained a fair reputation, and consequently there is every reason to test its efficacy in those cases of iritis the clinical symptoms of which bring them into relation with tubercular disease.

Reports on Therapeutic Progress.

THE INFLUENCE OF MINERAL CONSTITUENTS OF THE BODY UPON IMMUNITY FROM INFECTIOUS DISEASES.

Dr. Lauder Brunton and Mr. T. J. Bokenham contribute to the *British Medical Journal* for December 7, 1892, a short report upon this subject.

In the *British Medical Journal* of July 18, 1891, these authors narrated some experiments which they had made with potassium chloride administered to guinea-pigs with their food so as to saturate them, as far as possible, with the drug.

These experiments were made with the view of ascertaining whether such an artificial alteration in the mineral constituents of the body would alter its resistance to the attacks of an infectious disease. The results of our experiments showed us that saturation of an animal with potassium chloride in no way conferred immunity against anthrax; in fact, that the animals thus prepared died more rapidly than the control animals inoculated with the same virus.

In the present series the authors have tested the effect of feeding with salts of calcium, strontium, magnesium, and aluminium. The number of experiments is by no means large, but the results were so little satisfactory, and showed so little protective power on the part of any of these drugs, that it seemed undesirable to increase the number. Appended are the details of the individual observations.

Calcium Chloride Feeding.—On August 5, 1891, commenced feeding six guinea-pigs with calcium chloride in bran. They were fed daily for twenty-three days, and then inoculated with spleen pulp in broth, from a mouse dead of anthrax, obtained direct from a sheep by Dr. Martin. Inoculated also one guinea-pig which had been fed fairly regularly for about fifty-two days with calcium chloride bran. Inoculated at the same time two control animals: control one died between the forty-eighth and sixtieth hours; control two died in sixty-six hours. Fed animals: one died between the fiftieth and sixtieth hours, one died in sixty-five hours and a half, one died in sixty-seven hours and three-quarters, three died between the seventieth and seventy-eighth hours.

On September 3 fed four guinea-pigs with calcium chloride (2½ grammes daily). Inoculated fourteen days after with anthrax (fatal

for mice in three days), and at the same time one control. At the end of forty-eight hours all went well. At the ninetieth hour three protected animals were found dead. The control animal was still living. At the one hundred and fourteenth hour the fourth protected animal was found dead, as was also the control. Result: No protection.

Magnesium Chloride Feeding.—On September 9, 1891, two guinea-pigs, which had received daily one gramme each in their food for ten days, were inoculated with subculture of anthrax (Dr. Martin) which had been passed through a mouse. In forty hours both were dead.

On November 4 we began to feed four guinea-pigs daily with .75 gramme of magnesium chloride. On November 21 they were inoculated with anthrax (broth culture, Dr. Martin's), as was also a control animal. On November 23 (fifty-two hours) one was dead; and on November 24, before the sixty-fourth hour, the others were found dead. Result: No protection.

Strontium Chloride Feeding.—Two guinea-pigs were fed daily with one gramme each of strontium chloride in solution for ten days. On September 9 both were inoculated with subculture of anthrax (Dr. Martin, through a mouse). One died in twenty hours, the other in twenty-four hours.

On November 4 four guinea-pigs began to receive daily doses of .75 gramme. On November 21 they were inoculated with anthrax (broth culture, Dr. Martin), as were also two control animals. On November 23 (fifty-second hour) one control and two of the other animals were found dead. On November 24 the second control animal was found dead (before the sixty-fourth hour). On November 25 the two remaining animals died (before the eighty-fourth hour).

Aluminium Chloride Feeding.—On November 7, 1891, we began feeding four guinea-pigs daily with .375 gramme of aluminium chloride. On November 21 they were inoculated with a broth culture of anthrax (Dr. Martin). On November 23 (fifty-second hour) two were dead; at the fifty-eighth hour another was dead. On November 24 the fourth was dead. Result: No protection.

It is interesting to note, in conclusion, that in no case were any ill effects produced by the drugs themselves, even in the enormous doses in which they were administered. The animals were all in excellent health at the time of their inoculation, and seemed to thrive on their alkaline food.

THE TREATMENT OF MYXŒDEMA BY THE ADMINISTRATION OF THE THYROID GLAND OF THE LOWER ANIMALS.

We have already published in the THERAPEUTIC GAZETTE reports of the treatment of this curious disease either by hypodermic injection of thyroid extract, by the transplantation of thyroid gland, or by the administration internally of the gland itself.

In the *British Medical Journal* for January 7, 1893, CORKHILL reports a case of myxœdema with enlarged thyroid treated by subcutaneous injections of thyroid extract, with recovery. 15 minims of the extract, prepared by Messrs. Brady and Martin, were given three times a week in the interscapular region. No untoward effects, local or general, followed.

In the same number of the *British Medical Journal*, MR. BABER also reports a case of myxœdema in which good results were produced by feeding with fresh thyroid gland. The method of administration consisted in mincing up a thyroid gland of a sheep, which was then mixed with anchovy paste and spread upon toast. This was washed down with a little brandy and seltzer. Another meal of the gland was taken two weeks later, and again at the expiration of a week; in all, three doses. Marked improvement was noted. Immediately after the gland was eaten, headache and depression followed in each case.

TREATMENT OF MYXŒDEMA.

In the London *Practitioner* for January, 1893, DR. MCCALL ANDERSON reports a case of myxœdema treated by thyroid extract. After pointing out that we generally find that remedies administered by the mouth are not nearly so prompt in their action as when they are given subcutaneously, he states that this rule does not seem to hold with regard to the use of thyroid extract. And it is fortunate if this be so, because its subcutaneous administration has serious drawbacks, some of which occurred in the case reported.

1. Subcutaneous injection occasionally gives rise to alarming symptoms almost immediately after the injection, such as tonic spasm and loss of consciousness, especially if the remedy is not introduced very slowly.

2. Indurations and abscess are apt to result at the seats of puncture, even when every care is taken. Thus, in the case just quoted, there were indurations which at one point terminated in abscess, accompanied by fever and other

constitutional symptoms, which interfered with the continuous administration of the remedy.

3. In order to prevent abscesses the treatment must be repeated from time to time, and this can be much more conveniently done when the extract is given by the mouth.

It would be premature to speak positively with regard to the curative effect of this new remedy. That it gives great relief and dissipates all the unpleasant symptoms in a comparatively short space of time is now placed beyond doubt. But the evidence so far tends to the conclusion that, after the treatment has been suspended for a time, there is a tendency to a recrudescence of the symptoms. And, in the nature of things, this is what we might reasonably expect, seeing that an atrophied thyroid is as little likely to be restored as an atrophied testicle. But even if it is necessary for patients to swallow a dose of the extract once a week for the rest of their lives, this is no greater evil than falls to the lot of many healthy persons, of having permanently to resort to the use of aperients for the relief of chronic constipation, and this is borne with equanimity.

So that, from whatever point of view we regard it, there can be no doubt that a valuable new remedy has been discovered for the relief of a very serious disorder, and one which may pave the way for similar discoveries in other fields.

ATROPINE NOT AN EFFICIENT ANTIDOTE FOR OPIUM.

In Daniel's *Texas Medical Journal* for December, 1892, is an article published by Dr. David Cerna upon this important subject. The conclusions which he arrives at are:

That belladonna does not antagonize the action of opium upon the respiration or the circulation, and he believes that the ingestion of atropine in the case of a human being poisoned by opium is as unwarrantable and disastrous as the administration of alcohol in excessive doses in accidents under chloroform or ether.

EXCRETION OF MORPHINE BY THE SALIVA.

Leineweber, Marmé, Alt, and Lauber, in their experiments to determine the secretion and excretion in the animal organism of morphine injected subcutaneously, have thus far left the salivary glands entirely out of consideration.

Dr. Julius Rosenthal (*Centralblatt für Klinische Medicin*, No. 1, 1893) has been making extended examinations of the saliva of patients treated with morphine, and now gives a few preliminary statements of his results. The Dragendorff process, which is somewhat complicated, but very reliable, he only used in examining large quantities. In other cases he made use of a simpler method, partly given by Autenreith, which seemed to him sufficient to determine the presence of the alkaloid in the saliva. This he will describe later. As final reaction, he used in every case both that given by Husemann and Fröde, not considering the presence of morphine proven unless these reactions both took place. The iodic acid reaction, according to which, by the addition of chloroform, a pink color, and by that of a strong solution of zinc, a blue one occurs, he does not, after many attempts, consider entirely significant,—*i.e.*, characteristic of morphine,—and hence has seldom used it. His investigations show:

1. That morphine is excreted in not inconsiderable quantities in the saliva.

2. Morphine can accumulate in the body.

3. The positive issue of the reaction and the quantitative determination of the morphine present in the contents of the stomach do not allow any direct conclusion as to the amount of morphine abstracted by the action of the stomach, because some of it may have been swallowed in the saliva.

4. When morphine intoxication is suspected, the physician or chemist can examine the saliva, so much more easily obtained than the contents of the stomach.

CREOSOTE TREATMENT OF PULMONARY TUBERCULOSIS.

Dr. Albert Albu (*Berliner Klin. Wochenschrift*, December 19, 1892) writes of the use of creosote for pulmonary consumption in the Moabite Hospital, Berlin, during more than five years. A table shows the amount used during each year. Since November, 1891, the larger doses, so much commended by Sommerbrodt, have been used.

The dosage has been increased until a half-drachm and more a day has been given. The creosote is administered in pill form, each pill containing five-sixths of a grain of creosote.

As many as fifty, and even sixty, of these pills were sometimes given daily, and continued during weeks and months. Some patients took five thousand of these pills in a few months, and a few nine thousand, equal to four hundred and fifty grammes of pure creosote.

In general there was no difficulty found in the use of such great quantities of creosote. Most patients stood the large doses well, only a small number objecting to the pill or the creosote. The authors tried this remedy in all stages of phthisis, but especially in the initial stages.

Sommerbrodt has gradually come to the conclusion that the good results which he has obtained from creosote are due to its specific action upon the process of the disease. In a publication in 1889 he says that he no longer considers creosote as a symptomatic remedy, but inclines to the thought that it renders the nutritive medium less favorable or entirely hostile to the development of the tubercular bacilli. In 1891 he claimed that the increased dose would permanently cure not only the early stages of the disease, but its severe forms. In these extreme views Sommerbrodt is almost alone, and he has not given any scientific grounds for them, but supports them on his practical experiences.

On the other hand, experiments to explain the apparent favorable action of creosote upon tuberculosis of the lungs have not been lacking. Guttmann showed that an artificial nutritive medium, containing one-four-thousandth of creosote, deterred the growth of the tubercular bacilli, and a more concentrated form entirely prevented it; but he also showed that it would be impossible to give enough creosote to obtain this result in the organism. Others made experiments with the same results.

In spite of these facts, creosote has come into general use, and the results appear in a degree favorable. The manifold variety of type in the course of this disease makes it specially difficult to reach any proof. For phthisis the action of a remedy upon the fever is the only test, but here the creosote fails us. The creosote is without influence upon the tubercular bacilli. Among the numerous cases treated, Dr. Albu has seen none in which the number of bacilli was permanently diminished during the treatment. The idea suggests itself that possibly the virulence of the bacilli is diminished by the creosote, but experiments in the laboratory prove the contrary. So Albu does not see any influence upon the specific process of the disease indicated by either the clinical or the etiological symptoms of phthisis following the use of creosote. Even under the large doses of creosote, while many patients improve, others become worse; in some cases cavities form and amyloid degenerations occur. His observations and experiments have led Dr. Albu to believe that the action of creosote upon phthisis can only be symptomatic. The same improvement caused by creosote is also seen in patients who have had no medicine but expectorants and narcotics, but with these all the advantages of hygiene and diet which are possible in a hospital. A large number of such comparative observations were made, and those not treated with creosote often showed more rapid and favorable results. This was not ascribed to the detriment of creosote, but to the varied individual peculiarities and fluctuations so characteristic of the phthisis. Age and heredity, social conditions, former mode of life, present strength, natural power of resistance, exert such a great influence upon phthisis. One patient was in the hospital three different times. The first time he was treated with tuberculin, the second the expectant treatment was followed, and the third time creosote in large doses. Each time he gained from ten to twelve pounds in six to eight weeks, which he had lost while away. This shows that to the one factor common to all—the hygienic-dietetic conditions of the stay in the hospital—must be ascribed the improvement.

While Albu holds that creosote from a purely clinical point of view has no effect upon the tubercular process in the lungs, he considers it a useful remedy in the symptomatic treatment of phthisis, perhaps the best we now have. For most patients it seems to be a good expectorant, for others a stomachic; often it acts as a tonic. But it does not cure phthisis, least of all, not perfectly or permanently.

THE DIURETIC ACTION OF THEOBROMINE.

Dr. W. Cohnstein (*Berliner Klin. Wochenschrift*, January 23, 1893), after stating that secretory nerves for the kidneys have not yet been demonstrated, divides diuretics, according to their mode of action, into the following groups: 1, those which increase arterial blood-pressure; 2, those which increase the quantity of blood passing through the kidney; 3, those which act as direct irritants of the secreting epithelium of the kidney.

As to theobromine, commonly known as diuretin, the evidence as to its mode of action is somewhat conflicting. Cohnstein, as the result of his experiments, says that no rise of blood-pressure was observed, and that there was no constant influence upon the frequency of the pulse. No influence upon the energy of the heart's contraction was ever observed. In very large doses there was finally a gradual fall of pressure, and occasionally also of pulse fre-

quency. He concludes, therefore, that theobromine belongs to the group of drugs which act by direct irritation of the secreting elements of the kidney.

THE TREATMENT OF HÆMOPTYSIS.

In an excellent article upon the above subject, COMBY (*La Médecine Moderne*, Nos. 45 and 46, November 10 and 17, 1892) recommends the following:

For the principal revulsant blistering is of good service. This latter may be employed over the chest or, better still, over the back on both sides. As to medicines, he advises the employment of those agents that act upon the heart and vessels, and whose action is to modify their contraction. Digitalis, by regulating and slowing the cardiac movements, may modify or indirectly arrest hæmoptysis; quinine, which contracts the small vessels, may be associated with digitalis, and especially in those cases that occur in malarial districts. Even ergot may be combined with the above remedies, as in the following prescription:

℞ Powder of ergot,
Powder of digitalis,
Sulphate of quinine, of each, 10 centigrammes;
Glycerin, sufficient quantity.
Mix and make one pill.

One of these pills is given four or five times a day. The fresh powder of ergot may be given in doses of from 1 to 2 grammes in quassia or in a sweetened mixture. Ergotine and ergotinine may also be employed. Bonjean's or Ivan's ergotine may be administered subcutaneously. Ergotinine may be used in the strength of one milligramme to the cubic centimetre. Besides the above remedies, the author speaks well of tannin, also acetate of lead, the extract of rhatany (in quantities of from 2 to 3 grammes), and perchloride of iron in the form of vapor. Acids may also be said to be effective as adjuvants. The same may be said of balsamic remedies, such as turpentine, terpine, and terpineol. Terpine may be administered in cachets, each of these containing twenty centigrammes; four or five cachets are given in the course of a day. Ipecac is specially recommended in small as well as in large amounts, so as to produce either only nausea or violent vomiting. To allay pain, opium or morphine is to be relied upon. Mineral-waters useful in phthisis are condemned in the treatment of hæmoptysis. The internal administration of iron, iodine, and the iodides, which tend to cause congestion of the viscera, is also contraindicated in the disorder under consideration.

As to climate, taking into consideration individual idiosyncrasies, high altitudes, according to the author, are the best. In regard to prophylaxis, hygiene should be rigidly enforced; all physical and intellectual overwork and overfeeding should be avoided. Moderate exercise in the open air, careful and nutritious diet, the suppression of tobacco and artificial excitants, warm clothing, and the avoiding of taking cold are all measures which will enhance the production of most favorable results in the treatment of hæmoptysis.

COLD-WATER BATHS IN THE TREATMENT OF HEPATIC COLIC.

HUMBERT MILLIÈRE (*Lyon Médical*, November 27, 1892) reports two interesting cases of hepatic colic in which the most remarkable results were obtained by the application of cold-water baths.

The baths were generally given every three hours, the temperature of the water varying from 22° to 28° C. The duration of each bath lasted from ten to fifteen minutes; rectal injections of cold water were also employed. On one of the cases strychnine and antipyrin have been tried without success. In the second case the only remedy used was caffeine (in doses of 30 centigrammes), in order to regulate the action of the heart.

Under the influence of the Brand system a cure was produced in both patients. Commenting upon the happy results obtained, the author believes that the method warrants a further trial. The injections of cold water are also recommended, because putrid matters are thus removed from the intestine and reabsorption prevented. Cold water produces a lowering of the temperature and the blood in the venous system, and thus tends to diminish congestion of the liver, a most desirable effect.

Finally, the mechanical action causes peristaltic movements, thus facilitating the passage of the calculi. A diuretic action is also produced, which, in turn, enhances the elimination of poisonous materials.

THE CURABILITY OF HEPATIC CIRRHOSIS.

Four cases of hepatic cirrhosis of an alcoholic nature and one case of malarial origin are reported in detail by CLEMENTE FERRERA (*Bull. Gén. de Thér.*, October 18, 1892). In

all of them the most happy results were obtained under the influence of milk diet and the administration of iodides and mercurials. It has been shown by Murchison, in his most excellent treatise on hepatic affections, that mercurial preparations, especially blue mass, have rendered the best service in the treatment of this disorder. This fact induced Ferrera to apply a similar medication with the most striking results.

According to the latter author, diuretics, by increasing the function of the kidneys and aiding in the elimination of waste products, as well as in the reabsorption of dropsical effusions, contribute also in a marked degree to the success of the treatment. In an article upon the same subject, DUJARDIN-BEAUMETZ (*Bull. Gén. de Thér.*, November 15, 1892) recommends the hippurate of calcium in order to combat hepatic congestion, using the following prescription:

℞ Hippuric acid, 25 grammes;
Lime-water, sufficient quantity to neutralize;
Simple syrup, 500 grammes;
Syrup of lemon, sufficient quantity.
Mix four to six dessertspoonfuls a day.

The author does not believe in the administration of calomel, as advised by Germain Sée and Bouchard, because the drug, in cases of cirrhosis of the liver, is so apt to produce ptyalism, this phenomenon having a tendency to increase the cachectic condition of the economy. He calls attention to the use of copaiba, so much in vogue in England, and recently introduced in Russia in the clinic of Lebsch. The remedy has been advantageously employed in doses of 4 grammes per day. Besides diuretics, Dujardin-Beaumetz advises the careful use of purgatives. He condemns the application of hydrotherapy and electricity, as these measures have never given good results in his hands.

The author finally recommends the administration of the iodide of potassium conjoined with a milk diet, in order to enhance diuresis and at the same time the elimination of the iodine by the kidneys. The salt may be given in doses of from 2 to 4 grammes a day.

THE PRESCRIBING OF PEPSIN.

In the *Brooklyn Medical Journal* for December, 1892, DR. R. G. ECCLES contributes an article upon how physicians prescribe pepsin, in which, after pointing out that pepsin is the most sensitive remedy the physician prescribes, and that its range of incompatibles covers nearly the whole range of materia medica, he goes on to say that there are but few substances that do not in some degree arrest its proteolytic power, and yet it is prescribed frequently in utter disregard of its most glaring antagonisms, and almost constantly without thought of its minor inhibitors. Unless one has paid close attention to the subject, the best rule to follow is to prescribe it alone or with some substance known not to seriously affect it. Sugar of milk, glycerin, dilute acids, or alcoholic solutions known not to contain over twenty per cent. of alcohol are the best. Even this small amount of alcohol is slightly deleterious. As a fair illustration of how pepsin is treated by some Brooklyn physicians, the following prescriptions have been taken from the files of a drug-store in this city. They represent all those that called for pepsin during the period covered, except such as were repeatedly ordered by the same physician under merely slight modifications. The most flagrant violation of all rules regarding the administration of this substance was found in the following from a gentleman in good standing among the profession:

℞ Pepsinæ sacch., ʒi;
Sodæ bicarb., ʒss. M.
Ft. chart. No. xv.
Sig.—One every three hours.

Whatever the interest of the prescriber may have been, it is safe to say that that patient derived absolutely no benefit from the drachm of pepsin. He might as well have thrown the money it cost into the ocean. If the prescription did any good, it was due to the bicarbonate of sodium alone. A single grain of the soda was enough to destroy far more than the amount of pepsin prescribed as effectually as if it had been consumed in a furnace. Again, if there had been no sodium bicarbonate present, the quantity of pepsin given at a dose was so small that it could at best serve but little better than a placebo. The Pharmacopœia of 1880, following that of an earlier date, called for a saccharated pepsin that would digest fifty times its own weight of albumin in six hours, but it did not order the albumin to be comminuted. With finely-ground albumin the same pepsin will, in the same time, digest nearly ten times the amount it could if the albumin was submitted to it in large pieces. The earlier saccharated pepsins being expected to digest fifty times their own weight of lump albumin, were therefore nearly ten times stronger than our modern ones. Manufacturers, taking advantage of our new method of using finely-ground

albumin, claim to supply a U. S. Pharmacopœia saccharated pepsin, when, in fact, it is nothing of the kind. All it really digests, when truly gauged by the Pharmacopœia, is five times its own weight of non-comminuted albumin. Many will not even do this. As the quantity of liquid in the stomach bears no such large proportion to the meal as the quantity used in pepsin-testing does to the albumin, another source of deception creeps in. The whole drachm of pepsin of this prescription, had it been given at one dose, could not have digested a single ounce of meat or half of a small egg. But it was given in fifteen doses, three hours apart. Had each powder been left of full strength, it would not have digested a bulk of albuminous food much larger than a cherry, and it would have taken six hours to do that. But the stomach that does not digest a meal in less than six hours is not in prime condition. The next worst prescription came unsigned, as if the prescriber was himself ashamed of it.

℞ Subcarb. bismuth, ʒi;
American pepsin, ʒii;
Bicarb. soda, ʒi;
Spearmint water, q.s., ℥ii. M.
Sig.—One every two hours.

Here, again, we have the utter destruction of the pepsin by the bicarbonate of sodium. Surely it ought not to take this prescriber long to reach the point where he would turn around and denounce pepsin as useless. If he often serves it this way he can never hope to have good results from its use. Perhaps, however, he credits the pepsin with such good work as happens to be done by the soda or bismuth, and hence does not become its enemy. The quantity here ordered is better than the last, and is especially so because he specifies a brand that has in the past ranked above the average. But even here, had the ferment been left in full vigor, the quantity was too small to be of any great benefit. The next is scarcely as bad as the two preceding, but does not require a great deal of scanning to see wherein it falls seriously short of an ideal prescription:

℞ Ammon. carb., gr. ii;
Tr. opii camph., ♏xl;
Liq. pepsin, ʒi;
Aq. calcis, q.s. ad ℥iii. M.
Sig.—One every two or three hours.

Here we have ammonia carbonate and lime-water enough to more than overcome the acid of the liquid pepsin. All alkaline substances destroy pepsin, and therefore the care he took to specify whose pepsin he wanted was in vain. Lime-water and pepsin should never go together, and the same is true of carbonate of ammonium and pepsin. Why he thus strove to get his compound alkaline is a mystery, if he knew anything about the article he was prescribing. In the next prescription we find a blunder of the same kind made by a different gentleman. Here, however, less lime-water was called for and no ammonia carbonate.

℞ Aquæ cinnam., ℥iss;
Aquæ calcis, ℥ss;
Bis. subnit., ʒss;
Pulv. acaciæ, ʒi;
Pepsini, gr. xv;
Spr. vin. gallici, ʒiii;
Syr. pruni. virg., q.s. ad ℥iii. M.
Sig.—One every three hours.

Evidently these gentlemen were thinking more of the symptoms they wished to combat than about the chemical relations of the mixtures they were ordering.

The next combination is rather an uncommon one. It was evidently intended, like the bicarbonate of sodium prescriptions already given, to overcome acidity of the stomach as well as lack of digestive power. If two sets of powders had been ordered, the one containing the pepsin, the other the magnesium, and these given in rotation a few hours apart, they would have worked admirably:

℞ Pepsini,
Magnes. albi., of each, ʒi. M.
Ft. pulv. No. xii.
Sig.—One powder in water three times a day.

Here the quantity of pepsin in a single dose is 5 grains, but the quality may be very good or very poor. The druggist can take his choice from any one of the dozens of kinds upon the market. The five grains may be able to digest over twenty thousand grains of comminuted albumin, or they may not be able to digest more than five hundred grains. If the druggist puts in the best, it will be forty or fifty times stronger than the poorest. Unless he has tested the different brands himself he has no means of knowing which is the best or which the poorest. Price is no criterion, for one of the poorest is a high-priced article, and one of the very best sells wholesale at a reasonable rate. Nor can the claims of the manufacturers always be relied upon. Usually it is wise to take their florid statements *cum grano salis*.

The next two prescriptions are from the same physician. Usually he is very careful about what he orders with this ferment, but in these cases he touches the verge of danger:

℞ Sodii benzoat., gr. xl;
Potass. bromidi, ʒiss;
Spts. ammon. arom., ʒiss;
Syr. scillæ, ʒvi;
Fluid pepsin, ʒvi;
Aquæ, q.s. ad ℥ii. M.
Sig.—One drachm every three hours.

℞ Acid. phosph., ʒi;
Pepsin, gr. xl;
Spts. chloroformi, ʒiii;
Aquæ camph., ʒiii;
Aquæ, q.s. ad ℥iii. M.
Sig.—One after meals, in water.

If the druggist, in compounding the first of these, should inadvertently add the fluid pepsin before putting in the syrup of squills, there would be an instantaneous destruction of the ferment. If the syrup of squills happened to be deficient in acetic acid, or the aromatic ammonia had an excess of alkali or alkaline carbonate, the same thing would occur. Dispensed of proper strength and in the order given, no harm could befall the pepsin from the alkali, but the mixture will contain three salts showing considerable inhibitory power in the proportions ordered. In the second prescription we have the pepsin fortified by the acid phosphate, but seriously crippled by chloroform, that happens to be a very strong inhibitor of proteolytic power.

The next two are by different gentlemen, who have made the same mistake:

℞ Bis. subcarb., ʒss;
Hydrarg. chlor. mit., gr. ii;
Vini pepsini, ℥ss;
Tr. opii camph., ℥ss;
Tr. aconitæ rad., gtt. x;
Mist. cretæ, ad ℥ii. M.
Sig.—Small teaspoonful every three hours.

℞ Hydrarg. cum cretæ, gr. ii;
Pulv. doveri, gr. i;
Bis. subnit., ʒi;
Pepsini, ʒss. M.
Ft. chart. No. xii.

Again we see an attempt to correct the acidity of the stomach and at the same time administer pepsin. The result is always disastrous to the last-named substance. The chalk probably does not kill the pepsin's power as an alkali would, but it keeps away the acid, without which no pepsin is active. The mercury salts are likewise powerful inhibitors, and should never be administered with ferments. The error of the following is a very common one among physicians, and the prescription shows how deep-seated a simple physiological misconception can become:

℞ Cerii oxalatis, ℈iss;
Pulv. pepsini et pancreatin,
Bis. subnitr., of each, ʒi. M.
Ft. chart. No. xv.
Sig.—One after each meal.

Pepsin digests and thereby destroys pancreatin, and pancreatin digests and destroys pepsin. Pepsin requires an acid medium to digest in, while pancreatin develops its power in an alkaline one. If the pepsin benefits the patient, the pancreatin certainly cannot. If the pancreatin does the work, the pepsin is wasted.

The next two prescriptions represent the least objectionable forms when active drugs must be given with this ferment. The substances, while possessing some slight degree of inhibitory power, have much less than the general run of articles contained in a drug-store. The physicians prescribing them are both Americans.

℞ Quin. sulph., gr. viii;
Bis. subnit., ℈i;
Pulv. pepsini, ℈i. M.
Ft. pulv. No. viii.
Sig.—One every four hours.

℞ Pepsini puri, gr. xxx;
Bis. subnitratis, gr. xx;
Pulv. opii, gr. ss.
Misce bene et fiant chart. No. x.
Sig.—One every three hours.

There is but one objection to urge against these. The quantity of pepsin is too small. It is not in any sense toxic unless laden with foul bacteria. No pepsin should be dispensed that is not aseptic. A pepsin that is highly insoluble in water and very dilute acid is very likely to be highly infected, because of the way it is procured. A soluble pepsin that gives out a foul odor after twenty-four hours in a solution in a warm room should never be used. The dose of pepsin is indefinite. A whole drachm of the most active on the market can be swallowed without injury by an adult. If prompt action is wanted, doses of 10 grains or more of a first-class article should be given. The right kind of cases respond promptly to such treatment. With patients complaining of sour stomach, pepsin should not be given until that symptom has disappeared either spontaneously or by proper treatment. Where diphtheritic membranes are sought to be removed, the purest and most powerful brands can alone be relied upon for quick results. Where gangrenous wounds are to be cleaned off, the same advice applies. A pepsin capable of digesting twenty-five thousand times its own weight of albumin in pharmacopœial time has lately

been tested by the writer. Such an article, could it be made at a low rate, would be a powerful aid to surgeons and to physicians who have diphtheria to contend with. Hand in hand with antiseptics, they could easily vanquish septic and diphtheritic germs by its aid.

A COMPARATIVE STUDY OF THE PHYSIOLOGICAL ACTIONS OF BRUCINE AND STRYCHNINE.

In an interesting paper with the above title, published in the *Medical News* for April 8, 1893, DR. EDWARD T. REICHERT reaches the following conclusions:

A careful comparison of the results of the detailed studies made with these alkaloids shows so few and unimportant differences that the conclusions arrived at from the study of strychnine are applicable to brucine, with slight additions and modifications. In the following summary where differences exist they are distinctly stated; otherwise it may be considered that the actions and effects are identical.

1. The minimum lethal dose of brucine for the dog, when intravenously injected, is about .008 gramme to the kilo of body-weight, and of strychnine about .002 gramme, the relation being 1 to 40. In the frog, the minimum lethal dose of brucine is about .1 gramme, and of strychnine about .002 gramme to the kilo of body-weight, when subcutaneously injected.

2. Doses of from .015 to .020 gramme to the kilo, intravenously injected, cause a condition of absolute muscular quiet, and by means of artificial respiration the animal may be kept alive in excellent general condition.

3. Quantities in excess of .1 gramme to the kilo may be intravenously injected in divided doses without causing death, provided that artificial respiration be employed.

4. The toxic actions of brucine and strychnine are so directed to the motor centre in the spinal cord that the minimum fatal dose is exceedingly small, owing to the production of asphyxia or to exhaustion by the violence and persistence of the tetanic seizures. Should artificial respiration be maintained, about five hundred times the minimum lethal dose may be injected without an immediately fatal result.

5. By a proper regulation of the size of the dose and the method of administration, the stage of excitement may be prolonged over an almost indefinite period, or may be so brief as to last for but a few seconds.

6. During the stage of excitement the following actions and effects are observed:

a. The motor disturbances and convulsions are of spinal origin.

b. The sensory nerves and muscles are unaffected.

c. The motor nerves, after the onset and continuance of convulsions, become depressed from overwork.

d. The pulse-rate is lessened in frequency, then increased, and finally diminished. The first effect is due to a stimulation of the cardio-inhibitory apparatus, the second to its depression, and the last to a depression of the excito-motor ganglion, or automatic motor ganglion in the heart.

e. The arterial pressure is primarily diminished, then greatly increased, and at last diminished. The first effect is due to some obscure action on the vaso-motor centres in the medulla oblongata, the rise of pressure to a stimulation of the vaso-constrictor centres in the same part, and the final fall to a depression of the heart and vaso-motor centres. In curarized animals the rise of pressure due to stimulation of the vaso-motor centres is relatively and absolutely greater than in the non-curarized animal.

f. The respiration-rate is not specifically affected, unless it be in the nature of a decrease, or during the period of convulsions, when it may be decidedly increased.

g. The bodily temperature is increased.

7. During the stage of paralysis the following are noted:

a. The muscles are not in the least affected, unless after enormously excessive doses.

b. The sensory nerves are inexcitable to strong electric currents.

c. When the motor nerves are subjected to a powerful faradic current, spasm of the muscles supplied no longer occurs, although the nerves transmit impulses from the nerve-centres; irritability is lost, but conductivity remains.

d. The pulse-rate is reduced, but the height of the curves is increased, the first effect being due to a depression of the motor ganglia in the heart, and the second effect to the greater filling of the viscus with blood, and perhaps to a direct stimulation of the heart. The cardio-inhibitory fibres are paralyzed, but no increase in the frequency of the pulse-rate is observed, owing to the predominance of the depressant action on the heart ganglia. Stimulation of the vagi causes smaller pulse-curves and a slight increase in the frequency of the beats.

e. The arterial pressure is increased, unless the dose has been greatly in excess, when it is diminished. The increase is due to a stimulation of the vaso-motor centres in the medulla

oblongata, and the decrease to a depression of the heart and to vaso-motor paralysis. The increase of pressure is greater and more persistent in curarized animals. In non-curarized animals the pressure sinks below the normal immediately after the tetanic paroxysms, but in those curarized this depression is less marked. Asphyxia and electric stimulation of a sensory nerve fail to cause a rise of pressure, as in the normal animal; on the other hand, asphyxia is always accompanied by a fall.

f. The hæmoglobin is in some way affected so that it cannot be oxygenated to the normal degree, although the spectroscope reveals nothing but oxyhæmoglobin.

g. The temperature may be increased or decreased by brucine, but is always increased by strychnine. Cocaine is unable to cause its characteristic increase of heat-production and temperature, as in the normal animal. Apparently, both strychnine and brucine paralyze the accelerator thermogenetic centres, and leave intact the automatic thermogenetic centres.

h. The paralytic condition caused by strychnine and brucine closely resembles that produced by curare, but is in many ways entirely distinct.

8. The chief differences in the physiologic properties of brucine and strychnine are as follows:

a. Brucine is less rapidly absorbed than strychnine, and, as a consequence, is less prompt in its actions.

b. Brucine is from forty to fifty times less powerful as a convulsant, and therefore proportionately less fatal.

c. Brucine acts relatively more powerfully on the volitional centres in the frog than as a motor excitant, with the effect oftentimes of causing in these animals a loss of volitional movements preceding the stage of convulsions. In mammals, however, it does not seem that either poison ever destroys volition before the appearance of convulsions.

d. In excessive doses brucine is more poisonous to the sensory nerves than is strychnine.

e. During the last stage of the poisoning the action of brucine on bodily temperature is uncertain, while that of strychnine is positive. Brucine is, ultimately, a stronger depressant to the heart, and after enormous doses more toxic to the muscles.

9. The green frog (*Rana esculenta*) is somewhat more susceptible to brucine than the spotted frog (*Rana temporia*). The same difference is noted with strychnine.

The results of this research render it obvious that the physiological actions of brucine and strychnine are essentially identical, the differences being practically solely in degree and not in kind. This, together with the fact that the convulsant action of brucine is in the mammal about forty times less than that of strychnine, indicates that brucine will prove not only a safer drug, but of infinitely greater value as a general therapeutic agent.

HYPODERMIC MEDICATION.

In an extended article on the art of prescribing medicines, DUJARDIN-BEAUMETZ (*Bulletin Général de Thérapeutique*, February 15, 1893) recommends the following formulæ for hypodermic injections:

1. MORPHINE.

℞ Chlorhydrate of morphine, .10 gramme;
Boiling water, 10 grammes. M.

A half-syringeful represents five milligrammes of the drug.

To lessen the dangers of morphinism, atropine may be associated with advantage, as in the following combination:

2. MORPHINE AND ATROPINE.

℞ Chlorhydrate of morphine, .10 gramme;
Neutral sulphate of atropine, .010 gramme;
Boiling water, 20 grammes. M.

Each cubic centimetre of this solution contains half a centigramme of morphine and half a milligramme of atropine. The dose is 1 cubic centimetre of the solution hypodermically injected. The association of cocaine is condemned as a dangerous procedure.

The author advises the administration to persons in the recumbent posture only, since the vertical posture is apt to determine untoward symptoms, such as vertigo and syncope. He recommends this formula:

3. COCAINE.

℞ Chlorhydrate of cocaine, .20 gramme;
Boiling water, 10 grammes. M.

A syringeful may be administered in divided doses, never exceeding an injection of ten centigrammes of the solution.

The best method for the administration of quinine is as follows:

4. QUININE.

℞ Basic chlorhydrate of quinine, 1 gramme;
Alcohol at 60° F., 3 grammes;
Distilled water, 6 grammes.

Caffeine and theobromine, according to the author, are best administered in combination with the benzoate of sodium, as in the following prescriptions:

5. CAFFEINE.

℞ Caffeine,
Benzoate of sodium, of each, 2.50 grammes;
Boiling water, 10 grammes. M.

6. THEOBROMINE.

℞ Theobromine,
Benzoate of sodium, of each, 2.50 grammes;
Boiling water, 10 grammes. M.

In the case of antipyrin, to avoid local irritation, the author advises a solution of the drug in boiling water, in the proportion of 1 to 2 parts.

THE TREATMENT OF ACUTE ALCOHOLISM.

In the treatment of this condition, E. LANCEREAUX (*Bull. Génér. de Thérapeutique*, February 15, 1893) insists on a course of *inducing sleep* by all possible means. The patient should be isolated and placed in a dark room, under a careful watching; but no attempt should be made to enforce the use of the straight-jacket, as such a procedure is apt to increase the mental excitement and to hasten death in many instances. Regarding the use of medicaments, those should be employed whose action is on the nervous elements, with a tendency to diminish reflex irritability. Such are the bromides, opium, morphine, hydrate of chloral, and others. According to the author, the bromides act too slowly in acute cases; opium and morphine are decidedly useful to induce sleep, but as large quantities are required in most cases, the hydrate of chloral is to be preferred. This remedy, with or without morphine, has always given the best results in patients who have been previously isolated and in whom the use of the night-shirt has been dispensed with. The use of the chloral is indicated, but in order to bring on sleep large doses must be employed, since small quantities of the drug, on the contrary, excite alcoholic patients and are apt to enhance a fatal issue. 4 or 6 grammes of the medicament should be given at once in 150 grammes of an electuary containing 50 grammes of the syrup of morphine. If, in ten minutes after the ingestion of the potion here recommended, sleep has not been induced, a hypodermic injection of 1 or 2 centigrammes of morphine should be practised. If necessary, a second dose of the chloral mixture should be given. With this treatment, the patient, according to the author, will be ready to attend to his usual occupation in from twenty-four to forty-eight hours. It is not the multiplicity of medicaments, but the choice of the one indicated, which will lead to a successful treatment of acute alcoholism.

THE PHYSIOLOGICAL ACTION OF BROMIDE OF ETHYL.

The action of bromide of ethyl has been studied under Parloff, of St. Petersburg, by L. GUINZBOURG (*Vratch*, No. 31, 1892; *Bull. Génér. de Thérapeutique*, February 15, 1893). The experiments were made on dogs and rabbits. The investigator divided his experiments into three series. In the *first* series, the animals were allowed to breathe freely in an atmosphere charged with the bromide of ethyl; in the *second* series, a mixture of air and bromide of ethyl was insufflated into the lungs of the animals; and in the *third* series, the drug was administered intravenously in the form of emulsion. The general results obtained were as follows: The inhalation of small quantities of ethyl bromide produced narcotic effects, without any changes in the arterial pressure, although the pulse was accelerated but regular. Larger amounts caused from the start a diminution of the blood-pressure, accompanied with an irregularity of the cardiac beats; but such a diminution was of short duration. Still larger quantities of the drug produced a lowering of the arterial pressure, followed by an elevation of short duration; the diminution was again accompanied with disturbances of the pulse. With the elevation of pressure, however, the cardiac pulsations became regular. Very large amounts of the vapor of bromide of ethyl caused from the beginning a fall of the pressure, followed by an insignificant rise. In these instances the irregularity of the heart's action was quite marked. The drug, in small doses, produces an increase of the pulse-rate by an action on the cardio-motor ganglia or on the accelerator nerves; the slowness of the pulse, after large doses, being attributed to a diminished irritability of the cardiac muscle. The diminution of the arterial pressure depends on a paralysis of the peripheral vaso-motor constrictor system. Bromide of ethyl does not influence the vagi nor the central vaso-motor dilator system; neither is there much action exercised on the peripheral vaso-motor dilator nerves. The results of these experiments have led the author to conclude that narcotic effects can be obtained from bromide of ethyl without causing changes in the blood-pressure; that

toxic doses of the drug produce arrest of the respiration before that of the heart, and that disturbances of cardiac action are also induced; that, therefore, in administering the bromide of ethyl the same precautions should be taken as in administering chloroform. The anæsthesia by bromide of ethyl is rapidly produced, but it likewise passes off quickly. This phenomenon shows that the use of bromide of ethyl cannot well replace that of chloroform.

THE CHLORHYDRO-SULPHATE OF QUININE.

According to the studies of E. GRIMAUX and LABORDE (*La Tribune Médicale*, February 16, 1893), this new double salt of quinine contains 74.2 per cent. of the alkaloid, and is represented by this formula: $(C_{20}H_{24}N_2O_2)$ $2HCL,SO_4H_2,3H_2O$. The salt is soluble in its own weight of water at ordinary temperature. On account of its solubility and its large percentage of quinine, it is preferable to the sulphate and even to the chlorhydrate. From a series of experiments upon the lower animals, the new salt has been found to produce the same physiological and toxic effects as those caused by quinine,—that is, the characteristic bilateral shaking of the head in the guinea-pig; inco-ordination; motor ataxia; local, followed by general, anæsthesia; and later, cinchonism and phenomena of asphyxia. These effects were caused in doses of from .10 to .20 gramme hypodermically injected to a guinea-pig weighing four hundred grammes. These symptoms are rapidly produced. Clinically, the chlorhydro-sulphate of quinine has given excellent results as a substitute for the sulphate or the chlorhydrate. The authors give the details of four cases in which the new salt gave the most satisfactory results. They found, besides, that the hypodermic injections of the medicament under consideration are not painful, as is the case with the sulphate and even with the chlorhydrate. The authors add a note referring to the favorable results obtained with the new remedy by Laveran, who employed it in one of his cases. This latter authority sustains the advantages claimed for the remedy by Grimaux and Laborde,—that is, non-painful when administered subcutaneously, and its rapidity of absorption.

THE ACTION OF MORPHINE AND ATROPINE UPON THE CIRCULATION.

E. VOLLMER (*Centralblatt für Klin. Medicin*, No. 51, 1892) continues the studies begun by Binz, and carried forward by the latter's pupil, Henbach. Vollmer performed eleven experiments upon dogs, and he gives the details of each. The method pursued was to inject morphine subcutaneously, and then by a gasometer measure the respiratory volume of the dog when under the influence of the morphine. Atropine was injected in general from one to three hours later, and its effect upon respiration measured in the same way.

Vollmer concludes that atropine has the power, in dogs under the influence of morphine, to increase the volume of respiration quickly and decidedly. This increase occurs most quickly if the atropine goes directly to the brain and does not reach it indirectly by way of the heart and lungs.

Henbach's conclusion that the antagonism between morphine and atropine affects the entire organism, but especially the respiratory function, is justified. It is unknown whether the increase of respiratory volume under atropine depends immediately upon irritation of the respiratory centre or upon a lowering of a normal inhibitory innervation.

Vollmer criticises Orlowski's experiments by declaring that the doses of atropine he used were so disproportionately large, as compared with the morphine given, that the animals were overwhelmed by them. He, of course, maintains that Unverricht has no right to hold that atropine paralyzes respiration and is no antidote for morphine.

THE PRESENT POSITION OF BLOOD-SERUM THERAPY.

DR. ARTHUR KLEIN, in the *Therapeutische Blätter*, No. 1, 1893, says that recent advances in the study of the blood-serum may affect the whole future of medicine. These show the blood in the light of a protecting organ for the rest of the organism. Much investigation remains to be made, especially as to the conditions of immunity from infectious diseases. Behring's blood-serum therapy is the most recent of these important discoveries, and has already found its way to the bedside.

By immunity we understand the power of an organ to defend itself successfully against the entrance of an infection. This immunity may be congenital or acquired. The congenital is peculiar to the animal genus, the acquired is the special acquisition of an individual; in both forms the immunity is specific,—*i.e.*, for certain infectious diseases, but by no means for all. The rabbit appears to be non-inoculable

by the bacillus *Friedländer*, the dog by diplococcus pneumoniæ, the rat by anthrax. If we see a horse survive a deadly dose of a tetanus culture, we know that he must have acquired this immunity artificially.

The methods of producing artificial immunity are numerous, but, in general, they seek to follow the natural way as much as possible. There are two diverse views as to the manner in which the organism protects itself against disease. One view is, that there are cellular portions of the blood—the white blood-corpuscles—which render the organism immune, by forming a wall against the causes of infection, taking them up and destroying them (as scavenger cells). One must imagine that the mobilizing of the white blood-corpuscles at the point of the outbreak of infection (local inflammation) is due to a chemical irritation, which proceeds from the infectious germs, attracting the white blood-corpuscles. Opposed to this theory are equally acute observations, which see that the means of protection of the organism consists in substances dissolved in the blood. The excitants of infection known to us may be divided into two categories.

One kind is excessively increased in the body, growing through the tissues, pressing into the circulation, and threatening the organism by the very great hordes of parasites which are able to disturb or entirely stop the normal functions of the organs. These infections may be grouped under the general idea of septicæmia (as anthrax, diplococcus infection).

Another portion of infectious germs increase but little in the infected animals, or at least remain confined to the infected place; the pathogenic micro-organisms which belong to these (as tetanus, diphtheria, cholera) do not enter the circulation, but they produce an intensely active poison, which is absorbed by the organism attacked, and thereby develops an activity injurious to the organism. This must be distinguished as an entirely different mode of infection from the former, and is designated as intoxication.

If it is possible to render animals immune against the toxines, there must exist antitoxines.

If it is possible to produce a protective body of such power that it is able suddenly to render immune an organism where infection already exists, then the protective has become the healing substance, and the method of rendering immune a healing method. For the congenital immunity, no general explanation of its origin is yet possessed. For that artificially produced, we are able to trace it confidently to a property of the cell-free blood. But in no disease against which a sufficiently high degree of immunity has been produced in an animal of originally light receptive power has any one been able to prove the absence of the bodies conferring immunity in the extravascular blood of the individuals rendered immune.

First, a high degree of immunity is to be produced in a receptive individual, and then trial is to be made to see whether the blood of the animal rendered immune produces a preventive and healing action upon others. Behring has tried to render rabbits immune from a tetanus infection. The culture, bred in meat-broth, is reduced with carbolic acid to five per cent., which is now administered in five increasing doses, given by intraperitoneal injection. The doses follow each other at intervals of from three to five days. If the injection is not well borne by the rabbit, instead of increasing the dose, the last dose given is repeated. The animal acquires a correspondingly increased degree of immunity, as examination of its blood-serum shows. It is also tested by ascertaining what quantity of the serum will render a white mouse of a given weight immune. After receiving the last of the five injections, the injections are of the culture in its full virulence, always increasing from very small to larger doses.

But for large and susceptible animals we must either have a blood-serum of enormous power to render immune, or use it in enormous quantities. This shows that larger animals must be chosen for the treatment, which can endure the loss of larger quantities of blood without injury to their health, and are able to supply the necessary quantities of blood-serum. Sheep are suitable, but above all horses, which Behring regards as the "travelling apothecaries of the future." The method used for rabbits needs only slight modifications to be applied to horses. Behring has already cured large animals with this, and Rotter reports one man successfully treated for tetanus; of course further experiment will develop a more potent cure.

TREATMENT OF DIPHTHERIA WITH CHLORIDE OF IRON.

Dr. E. Hübner and Dr. N. Rosenthal (*Therapeutische Monatshefte*, December, 1892) write in separate articles of the use of chloride of iron for diphtheria, as recommended by Rehn. Dr. Hübner treated fifty-two cases with

it, losing only two, although six other patients had the disease with such severity that he could not have hoped to save them with any of the remedies formerly used. He had the throat painted twice daily, and in very severe cases three times, with a solution of 4 equal parts to 1 part in 5. He also made use of frequent sprinkling of the throat with weakened lime-water, of ice pellets, and an ice bandage about the throat.

Dr. Rosenthal tabulates seventy-nine cases of undoubted genuine diphtheria treated by him. The patients came under his treatment early, and remained until the disease was over. Only seven, or less than nine per cent., died, and the good results must be ascribed to the remedy.

THE VALUE OF DRUGS.

In the London *Practitioner* for January, 1893, Dr. Samuel Wilks contributes an interesting practical article upon this subject, in which he points out that there are striking forms of disease to which we can give a name, but the majority of cases are too complex in their variety of trivial symptoms to be received into any nomenclature. There is often a general disturbance of the whole machinery without any disease whatever, the cause which upsets the machinery being found in the patient's surroundings. The latter believes that there must be some actual malady in the spot where the uneasiness is felt; but alas! for the doctor who wishes to be scientific in his treatment and discover the organic cause; the bromide which he prescribes does not touch the shrew at home or the exacting master at the office. Such, however, are many of our patients,—the man ailing from anxiety in business, the woman from domestic troubles, the young girl from causes touching the affections,—and they all suffer from headache, dyspepsia, sleeplessness, and the like. They naturally seek the doctor's advice, and they get in return such remedies as ammonia and the bromide of potassium. He says, as regards the latter drug, that a medicine of so universal application cannot be of much worth. He knows of no disease in which it has not been given. Our true remedies, such as digitalis or iodide of potassium, have only a limited special power, but a drug like the bromide, excepting for its influence in epilepsy, must be considered but a poor and feeble remedy. It cannot be said that it has ever cured a disease. Its universal use is enough to characterize its impotence. He has never read the prescriptions of certain obstetric physicians without observing that bromide of potassium is an ingredient. It is curious, but not a very exhilarating exercise, to look over one's note-books, and observe the prime cause of the trouble for which the bromide was prescribed. If we do, we find something like the following under "cause" of the complaint and "remedy": Worry in business, bromide of potassium; loss on the Stock Exchange, bromide of potassium; quarrel with the cook, bromide of potassium; loss of a pet dog, bromide of potassium; blighted affections, bromide of potassium; girlish love-troubles, bromide of potassium; irritable step-mother and step-daughter, both bromide of potassium; and so on through an infinite number of causes which upset the nervous system. Wilks is afraid he has ruffled the temper of more than one medical man whom he has met in consultation. After describing the symptoms, and he is about to relate the treatment, Wilks forestalls him by saying, "I suppose you gave him a little bromide of potassium." There seems, however, to be no help for it, and we are forced to treat the most prominent symptoms when we cannot remove the cause. In such cases as these, however, it is most difficult to discover the efficacy of medicines. In order to do this we must very much narrow our field of observation, and fall back on a few well-defined diseases in order to decide the true value of drugs. Fortunately, in these clearer instances we can prove their value to demonstration. The correct method would be to report these cases in full, with the accompanying treatment, so that the connection between cause and effect would be more evident. As space will not allow this, no more can be done than, with his note-book before him, give the reader the results of a long experience in a few well-marked instances of known diseases.

He says, in speaking of true and well-established remedies, that our knowledge of them has been mainly empirical, their mode of action being often unknown. He still maintains, however, that our method of using them is scientific, if we can say from long observation that their administration is indicated in particular cases by special circumstances. He calls it an unscientific method, and essentially bad treatment, if when a remedy is originally suggested for a plausible reason, it is still persevered in, although it has been found to be utterly valueless; a routine system goes on, whatever the result may be, and nothing arrests it but the adoption of a new theory. Witness the frequent changes in the treatment of phthisis.

He gives one or two examples of his mean-

ing. A very common cause of a thickening or swelling over a bone is the formation of a syphilitic deposit. This is cured by iodide of potassium; therefore all enlargement of bones is to be treated by this remedy. Wilks has never, however, seen an enlarged or hypertrophied bone reduced by it, nor does he think it possible for osseous tissue to be absorbed by it. Some years ago he took to the Pathological Society some enlarged bones of a man who had long suffered from osteitis deformans. After exhibiting them, he said he should now proceed to read the treatment which the patient had undergone at the hands of a great many of the leading physicians and surgeons in London. When Sir William Fergusson, the President, saw the thick bundle of prescriptions, he requested Wilks to refrain from doing so. Wilks replied that they would not take a minute to read, for the whole of them consisted of iodide of potassium.

Another example is that of the treatment of hypertrophy of the spleen, as seen in splenic leucocythæmia. This is so slowly developed, and the symptoms are so slight, that, as a rule, the organ is of very large size before the patient seeks advice; it may even have reached the pelvis and have turned the corner. Nearly thirty years ago, about the time when the disease came to be more generally recognized, he collected a large number of cases. These had all been treated by quinine, mercury, and iodides, together with local applications of the same, the object being, of course, to endeavor to absorb the tumor. These drugs had not the slightest effect, and when one found that the enlargement was a true hypertrophy, there seemed no reason why they should cause the absorption of splenic any more than any other tissues. So far as my experience goes, iodide acts only on the new lowly-organized products, so as to cause their disintegration, and only in large and poisonous doses would it destroy the healthy organized tissues. Ever since he made these observations he has never yet met with a case of splenic disease where the above-named remedies have not been systematically used, and always, of course, with the same negative result. In speaking of the iodide and the limits of its usefulness, he noted that it is still frequently prescribed in tuberculous meningitis, as being the remedy most likely to do good, although he is not aware that it has ever cured a single case.

Exophthalmic Goitre, or Graves's Disease, cured by Belladonna.—As this disease is so chronic in its course, and as belladonna so often produces specific symptoms, it is necessary to leave it off for a time, and in the intervals give some other medicine, such as quinine. It is thus true that, in nearly all his cases, other medicines have been given besides belladonna. They have, however, by themselves been found quite ineffectual in arresting the disease. He therefore considers that they may be put aside as inert. This leaves belladonna alone as the sole agent in bringing about a cure. He has in his note-book several cases, mostly of women in whom the symptoms were well marked, which got absolutely well in the course of some months under the belladonna treatment. He has usually given ½ grain of the extract three times a day, with short intervals of rest. He here remarks that it is admitted that the disease may exist notwithstanding the absence of certain symptoms; in one case there may be no exophthalmos and in another no goitre. He goes further, and believes he sees cases where neither exophthalmos nor goitre exist. But lately he saw a middle-aged lady who, without apparent cause, had grown very thin, and had taken tonics and good diet without any effect. There was a very rapid pulse and perspiring skin. He thought of Graves's disease, and prescribed belladonna. When he saw her a month afterwards she was another woman, and on the high road to complete recovery.

Idiopathic anæmia is another disease continually tending downward to inevitable death, but very often absolutely cured by arsenic. Having now used this medicine for nearly thirty years, he is much impressed with its value, and considers it one of the most remarkable in the Pharmacopœia. During the last year he was consulted by a gentleman between fifty and sixty years of age, who for several months had been getting so pale and breathless that he was obliged to give up the duties of his profession. He had long taken iron and plenty of animal food in vain. Wilks prescribed solution of arsenic in 5-minim doses three times a day. In a month he had color in his cheeks and had recommenced his work. When he met him two months afterwards he said he was quite well. In another case, that of a gentleman who had taken to his bed with œdema of the ankles, the patient was walking up the hills near Hastings a month afterwards. He went abroad, and had a relapse and died. The temporary effect of arsenic in nearly all these cases is very striking. It is to be noted that to give iron to all patients who are pale is poor practice, for even in chlorosis, where it is the best remedy, and the red corpuscles increase under its use, the disease may often be cured by aperients and good diet.

Tuberculous Peritonitis.—This is a disease curable by medical treatment. It might, perhaps, be more correct to speak of tuberculous disease of the bowels, seeing that it is very difficult to determine the depth of the intestine which is affected. In the recoverable cases the mucous membrane is probably not much involved. We know of the curability of this disease from coming across the remains of it in adults who have suffered from the complaint in their earlier years. Some of the most striking pictures, of what has appeared a resurrection from the dead, have been presented by this disease. Wilks has had two cases of young girls in private practice, and several others of boys and girls in hospital, who were lying in bed wasted to a shadow, with large, tumid, and painful abdomens, presenting, indeed, the appearance of persons in the last stage of consumption. To see these patients slowly recover, and present themselves, perhaps a year afterwards, stout and ruddy, has appeared a most marvellous metamorphosis. They have had the general treatment of cases of phthisis,—good living, milk, wine or beer, cod-liver oil, and tonics, especially quinine. At the same time they have an active treatment as regards the abdomen,—iodide of potassium with or without the quinine, and linimentum hydrargyri rubbed over the abdomen, followed often by the tincture of iodine. Seeing the frequent occurrence of recovery, one cannot but think that herein the right method has been adopted.

Dysentery and Chronic Diarrhœa.—If a patient during several months is suffering from these disorders, and is wasting away with only one termination before him, and then the medical man steps in with his treatment, there can only be one conclusion to come to,—namely, that he has been cured by medicine. Simple diarrhœa is due to a temporary cause, and works its own cure; but when it persists it may generally be surmised that the large intestine has its mucous membrane in a morbid state; it may be inflamed or ulcerated, if certain symptoms are present. In these cases the ordinary diarrhœa medicines are of little use, and indeed he is very sceptical as to their value in any circumstances. He alludes to chalk mixture, catechu, etc., as well as to sulphate of copper. The only remedies in which he has faith are mineral acids and ipecacuanha, with perhaps small doses of opium. One great source of failure in treatment is want of perseverance in any one medicine. The disease being chronic, the cure is necessarily long (as Hippocrates observes), and yet this is constantly forgotten, the complaint being regarded day by day as better or worse, according to the number of times the bowels are moved. There was the case of a sailor who had been discharged incurable from the navy. Wilks looked at his parchment and prescriptions. From these he selected one, and ordered him to persevere with it. After taking it three months he left the hospital convalescent. He had for a short time the benefit of the milk-and-suet-pudding diet, which means the abstinence from all other kinds of food. When patients with chronic looseness come to Wilks, he in the first place prescribes 5 grains of pulvis ipecacuanha co. three times a day, and subsequently orders some nitro-hydrochloric acid, with a smaller amount of the Dover's powder, or a simple ipecacuanha pill at bedtime. In speaking of mineral acids, his mind reverts to a very old experience of sulphuric acid in autumn diarrhœa. During a cholera epidemic, when he was physician to the Surrey Dispensary, he had a considerable number of cases of diarrhœa, which continued unchecked by opiates or the ordinary chalk mixture and logwood. In these cases a few doses of dilute sulphuric acid and tincture of cardamoms would at once arrest it. It may be remarked that both mineral acids and ipecacuanha have some special influence over other mucous membranes, such as those of the stomach and bronchial tubes.

The instances mentioned are those of a few well-marked diseases which are arrested and cured by the medical art. Of course there are a multitude of other cases where a remedy has been administered to relieve some morbid condition during the progress of an organic disease, and the tendency to death has thus been averted. For example, a patient with mitral disease is seen sitting up gasping for breath, with dropsy, and all the organs gorged with blood and serum. Digitalis is given, and after a few doses marked relief is obtained, and followed by subsidence of dropsy, pulmonary engorgement, and other effects of the heart-disease. When such a person is met walking about in the streets a few weeks afterwards, one cannot but marvel at the power of the drug. In many familiar complaints it is not at all unlikely that the temporary administration of a drug may have averted death. In typhoid fever, long-continued wakefulness and irritability, which is wearing out the patient, may be corrected by an opiate, or at other times impending dissolution may be averted by a dose of brandy. That fatal hyperpyrexia may be arrested by a cold bath is well known.

CHLORATE OF POTASSIUM AS A GALACTAGOGUE.

In a most interesting communication, ALEXANDER HARKIN (*Bull. Général de Thérapeutique*, December 30, 1892) calls attention to the property of chlorate of potassium in increasing the secretion of milk, both in man and the lower animals. In the case of man, the author affirms that the remedy (simple and inoffensive) can be administered without danger to either mother or child. The medicament, he says, is composed of the two elements absolutely necessary for the genesis and functional activity of the blood,—oxygen and potassium. The potassium chlorate he administers in concentrated solution, in doses of 1 ounce (about 28 cubic centimetres) three times a day before meals. The solution is made by dissolving 1 ounce of the chlorate of potassium in 2 ounces (56 cubic centimetres) of water. From the beginning of the treatment, following the first twenty-four hours, there is noticed an increase in volume of the mammary glands, this resulting in a marked increase of the secretion of milk, with a corresponding amelioration in the health of both mother and child.

The same results were obtained in the cow, n a series of experiments. As in the case of the human being, in the cow the secretion of milk ceases after a certain period, and it has been found that by stimulating the lacteal secretion not only the health of the cow is enhanced, but also the growth of the calf. This stimulation has similarly been brought about by the administration of the chlorate of potassium. In these animals the drug proved also to be non-poisonous. The author relates the instance of a cow that, following an attack of puerperal fever, ceased to furnish milk, and in which the administration of the chlorate of potassium not only destroyed the fever, but also caused the re-establishment of the secretion of milk, and thus the calf was saved. Experiments were carried on with eight cows. The animals were fed, during four days, according to the following method: At 6.30 A.M., 12.700 kilogrammes of roots and 7 pounds of brewery grain; at 7.30 A.M., 10 pounds of hay; at 12 M., water; at 12.30 P.M., 6 kilogrammes of roots and 7 pounds of cotton-seed; at 5.30 P.M., the same as in the morning; and at 8.30 P.M., 10 pounds of hay. On the fifth day, and during the following twelve days, each cow received, besides the usual nourishment, 7 grammes of the chlorate of potassium three times a day. According to the detailed table given in the original, it is seen that the secretion of milk was considerably increased. The ages of the cows ranged from two and a half to five years.

THE COMBINATION OF CORROSIVE SUBLIMATE AND TARTARIC ACID.

YVON and BERLIOZ (*Bull. Général de Thérapeutique*, December 30, 1892) call attention to the official combination of corrosive sublimate and tartaric acid as recommended by the Académie de Médecine on the report of Budin, made in 1890. Yvon and Berlioz affirm that this antiseptic combination is a sufficiently stable preparation. The only precaution to be taken in producing it is to see that the tartaric acid is *pure and free from moisture*, and that in making the mixture the mortar is perfectly dry. The mixture, divided in powders and well wrapped in paper, must be kept, as much as possible, free from moisture and the light. Under these conditions no alteration is likely to occur. The combination is made as follows:

℞ Corrosive sublimate, .25 gramme;
Tartaric acid, 1 gramme;
Alcoholic solution (five per cent.) of indigo carmine, gtt. i.

This last solution is prepared by dissolving five grammes of *dried and pulverized indigo carmine* in ninety-five grammes of alcohol at 20°. One drop of this solution contains fifteen tenth-milligrammes of indigo carmine.

GUAIACOL IN THE TREATMENT OF PHTHISIS.

PETER (*La France Médicale*, January 6, 1893) writes of the therapeutic action of guaiacol in pulmonary affections. He details several cases, principally of phthisis, in which good results were obtained under the hypodermic use of the drug. The author refers to similar observations made by Labadie-Lagrave, Picot, and Weill, all of whom have employed the remedy subcutaneously with the same good effect. Of twenty-five cases treated by Peter, this author observed three deaths, two cases of hæmoptysis, and one of embolism, which also terminated in death. In all the rest there was a notable amelioration. The author believes that the remedy exercises its action upon the lung-tissue and not upon the bacilli. Being eliminated chiefly by the respiratory tract, it acts like the sulphuretted hydrogen of sulphur waters, converting a tubercular into another kind of inflammatory process. Following the elimination of the drug there is a diminution

and often a disappearance of the catarrhal secretion. Under the guaiacol treatment there is also noted an increase of the appetite, this being due to an irritation of the gastric mucous membrane caused by the medicament. Peter has likewise seen guaiacol do good in other diseases of the respiratory tract, such as *dilatation of the bronchi, chronic bronchitis*, and *fetid bronchitis*, an affection which he designates under the name of *curable gangrene* of the lungs. In intense catarrhal bronchitis, and in dilatation of the bronchi accompanied with gangrene of the bronchial walls, he considers guaiacol in small doses superior to creosote. The author generally employs the drug according to the following combination:

℞ Sterilized oil, 100 grammes;
Guaiacol, 30 grammes;
Iodoform, 5 grammes.

Of the guaiacol itself he gives subcutaneously .50 gramme at a dose. Picot's formula is this:

℞ Sterilized oil, 100 grammes;
Guaiacol, 5 grammes;
Iodoform, 1 gramme.

Of this solution a daily injection of from 2 to 3 cubic centimetres, containing .10 to .15 gramme of guaiacol, is administered.

HELIANTHUS ANNUUS AND METHYLENE BLUE IN THE TREATMENT OF INFANTILE MALARIAL FEVER.

In a communication to the Société de Thérapeutique, MONCORVO (*La Nouveaux Remèdes*, January 8, 1893) relates his experience with these two drugs in the treatment of malarial fever of children.

Helianthus Annuus.—Of this drug he employed a tincture of the flowers and leaves and an alcoholic extract. Both of the preparations were used by themselves, so that the effects produced could not be attributed to anything else. The author treated sixty-one children,—thirty-three boys and twenty-eight girls,—their ages ranging from one month to twelve years. In the majority of these cases a cure was more promptly effected than if quinine had been employed. When the treatment with the helianthus was regularly followed, the use of the cinchona alkaloid was entirely discarded, unless serious and alarming symptoms were developed which necessitated the action of quinine. The tincture of helianthus was given in daily quantities of 10 grammes, in divided amounts, with an interval of two hours between each dose. The alcoholic extract was administered in daily doses of from 1 to 6 grammes. The remedy was well tolerated even by the youngest of the little patients. The helianthus, therefore, is considered by the author an excellent substitute for the cinchona alkaloid.

Methylene Blue.—With this medicament he treated thirty-six cases of infantile malaria, the ages of the children varying from twenty-four days to fourteen years. He obtained ten cures and three ameliorations. In fourteen cases the results were not well marked, owing to an irregularity or interruption of the treatment. The drug was administered in doses of from 20 to 40 centigrammes, in divided amounts, every two hours. In cases of recovery, this took place in from twenty-four hours to a few days. The remedy was well borne, and in only one case was there produced a vesical tenesmus of short duration. Other untoward symptoms, like nausea, vomiting, diarrhœa, polyuria, and albuminuria, as pointed out by Guttmann and Galliard, were not observed. The urine and the stools were always colored blue; the same coloration was noticed on the mucous membrane, this phenomenon persisting for twenty-four hours after the suspension of the drug. It may be added that the medicament was not associated with other remedies, except purgatives, intestinal antiseptics, etc., which in themselves exercise no antimalarial action. Methylene, according to Moncorvo, is almost tasteless, and is, therefore, on this account, preferable to quinine, especially in the case of children.

CHROMIC ACID IN THE TREATMENT OF DIPHTHERITIC ANGINA.

In the general treatment of diphtheritic angina, LESCURE (*La France Médicale*, January 13, 1893) insists, first, in stimulation of the patient in order to render the system sufficiently powerful to resist the general poisoning; and, secondly, to facilitate the destruction and elimination of the toxine products. For the first indication he recommends a light but stimulating diet, consisting of broths, vegetable-soup, pea-soup, meat-juices, eggs, chocolate, cream, and the like, this diet to be associated with tonics to combat the asthenic condition, such as nux vomica, cinchona, and alcohol. The alcohol may be administered in the form of Bordeaux, Malaga, and cognac or rum, in from 30 to 60 grammes in the course of the twenty-four hours. To enhance the elimination of the toxines by the urinary apparatus, the administration of milk, coffee, tea, and alcohol, in the form of cognac or rum espe-

cially, is recommended. The author advises, besides, the following prescriptions:

For local applications:

1. ℞ Chromic acid, 1 gramme;
Distilled water, 5 grammes.

2. ℞ Tannic acid, 6 grammes;
Glycerin, 30 grammes.

For internal administration these:

3. ℞ Tincture of eucalyptus, 3 to 10 grammes;
Gum-arabic water, 90 grammes;
Syrup of orange, 30 grammes. M.
Sig.—A tablespoonful in the twenty-four hours.

4. ℞ Tincture of nux vomica, gtt. xl;
Extract of cinchona, 5 grammes;
Syrup of orange, 100 grammes;
Malaga wine, 200 grammes. M.
Sig.—A dessertspoonful three times a day.

The minimum dose of the tincture of nux vomica for children is 3 drops every twenty-four hours, but this amount can be increased according to the age of the patient to 5, 6, and even 8 drops a day. The last two mixtures are administered from the first day of the disease.

Of fifty-four cases treated by the above method the author did not meet with a single death. He saw among these five cases of mixed diphtheria of a highly-infectious character, in which bacilli and the streptococcus pyogenus were found at the same time. The ages of these patients ranged from twenty-seven months to three, four, and seven years. The duration of the malady was from nine to fifteen days. In nineteen cases he observed the existence of marked submaxillary adenopathy, albuminuria, the consecutive paralysis of the soft palate, and in five of them the symptoms were accompanied by a slight paralysis of the inferior extremities. In fourteen cases there was no paralysis, but the albuminuria in the urine and the ganglionar disease were prominent. In these cases the duration of the malady ranged from six to seventeen days, the ages of the little patients being from seventeen months to nine years. In the other sixteen cases the treatment was instituted from the first or second day of the disease. In them the affection ran a mild course, and a cure was usually obtained in four or five days, the two or three applications of the chromic acid being sufficient to destroy the false membranes. It is worthy of note that the disease was not propagated to the larynx in a single one of the cases treated as above.

The author believes that the treatment of diphtheritic angina by the means described is advantageous for several reasons: First, it shortens the duration of the malady; secondly, it is not painful, and does not cause secondary inflammatory reaction; thirdly, while the acid destroys the false membranes, it does not injure the healthy mucous membranes; fourthly, the treatment is of easy application. The base of the whole treatment is, of course, the local application of the chromic acid, since this agent, by destroying in a rapid manner the false membranes, lessens at the same time or immediately arrests the production of toxines. The author, however, considers advantageous the use of the tannic acid and the tincture of eucalyptus. The false membranes are touched once or twice in the twenty-four hours with the chromic-acid mixture above given. The tannic-acid applications may be made three or four times only.

THE PRODUCTION OF ANÆSTHESIA BY THE COMBINED USE OF BROMIDE OF ETHYL AND CHLOROFORM.

POITON-DUPLESSY (*L'Union Médicale*, January 28, 1893) recommends the combined use of bromide of ethyl and chloroform for the prompt and effective production of anæsthesia. In the use of this method he claims priority for France. The author advises the following *modus faciendi:* 1. Pour into the cone, or upon a compress, the ethyl bromide, but be careful not to produce too rapid an action; make the patient breathe from two to five minutes. 2. As soon as the patient begins to lose consciousness (without excitement), and when the face exhibits a condition of congestion and the pupils begin to dilate, substitute chloroform, and pour this in a methodical manner. In this way a complete anæsthesia is obtained sometimes directly, sometimes after a moderate and short period of excitability. 3. In certain cases (especially in alcohol-drinkers) in which this excitation is somewhat exaggerated, it is largely suppressed by the readministration of the bromide of ethyl. In this manner the most inveterate drinkers can be anæsthetized. 4. Once the anæsthesia is established (with the advent of muscular relaxation, pupillary contraction, and abolition of the oculo-palpebral reflexes), it can easily be prolonged by a small dose of chloroform. According to the writer, with the association of these two anæsthetics, whose action on the mucous membranes, on the heart, and on the blood-pressure is absolutely different, the anæsthesia is produced, while the toxic effects caused are reduced to a minimum.

THE PHYSIOLOGICAL ACTIONS OF THYMACETINE.

From an experimental research on the physiological actions of thymacetine, E. MARANDON DE MONTYEL (*Bull. Génér. de Thérapeutique*, January 30, 1893) has drawn the following interesting conclusions:

1. Thymacetine does not seem to exercise an action on sleep, the intellect, the vasomotor system, the genital organs, the secretions, or the intestines.

2. Thymacetine, without influencing any of the other reflexes, produces in a few instances a marked double dilatation of the pupil, but without disturbances of vision, the symptom appearing during the first hour, and lasting from thirty to forty minutes.

3. Thymacetine sometimes produces, immediately after its administration, but only for a short time, however, dizziness, associated with a slight degree of intoxication.

4. In three-fourths of the cases thymacetine causes a slight headache, this lasting several hours, appearing usually at bedtime, and, rarely, next morning on awakening.

5. Thymacetine always increases, for about two hours, muscular force, as measured by the dynamometer.

6. Thymacetine increases the bodily temperature to about one degree, the elevation, like the decline of the same, occurring gradually, returning to the normal point in about two hours.

7. Thymacetine, during a period of two hours, increases the number of inspirations without modifying their rhythm.

8. The drug also causes, during the same period of two hours, a rise of the arterial pressure and an increase in the number of pulsations, but without producing cardiac palpitations.

9. Thymacetine, in two-thirds of the cases, causes towards the afternoon great lassitude, which often persists till the following day, even after waking; but there are no concomitant physiological or psychological disturbances produced.

10. Thymacetine, in all cases, modifies micturition in three ways: *a*, it accelerates or delays the desire of urinating; *b*, it causes a urethro-vesical spasm, a momentary retention, and dysuria, but these disturbances soon disappear; *c*, occasionally during the passage of urine a scalding sensation is felt, which also soon disappears; these occur singly or in combination.

11. Exceptionally before micturition, thymacetine produces shooting urethral pains.

12. Thymacetine, in two-thirds of the cases, causes a bitter taste, accompanied with a sore mouth and a coated tongue, but no special odor of the breath.

13. In most individuals thymacetine produces, during an hour or more, a burning gastric pain, more often localized, but sometimes felt all over the body; rarely, a scalding sensation is felt along the œsophagus.

14. Thymacetine is capable of producing a marked thirst, anorexia, and also gastric disturbances, which disappear on the suspension of the drug.

15. In a general way the organs become rapidly accustomed to the action of thymacetine, especially the bladder and the urethra; the stomach, however, is the only organ to become more and more susceptible to the influence of the remedy.

16. All the preceding physiological actions are produced by small doses of thymacetine; still, the sensations of dizziness, the temperature, digestion, and micturition are influenced in direct proportion to the amount of the drug ingested.

17. Of all nervous disorders, general paralysis is the least susceptible to the action of thymacetine; in such cases dilatation of the pupil, or dizziness, was never observed, and in them urethro-vesical spasm was less frequent and less marked than in cases of insanity; on the other hand, in paralytics the spasm occurred more frequently than in epileptics.

THE MECHANICAL TREATMENT OF LOCOMOTOR ATAXIA.

In a well-prepared article, RUBENS HIRSCHBERG (*Bull. Génér. de Thérapeutique*, January 30, 1893) discusses the method of Fränkel in the treatment of locomotor ataxia, which consists of three categories of movements, as follows:

1. *Simple muscular contractions*,—that is, the action of one single muscle or a physiological group of muscles, such as flexion, extension, adduction, abduction, etc.

2. *Simple co-ordinated movements*, such as the catching of an object at a certain distance, touching the end of the nose with the index-finger, raising the hand to the mouth, etc.

3. *Compound co-ordinated movements*, such as writing, catching objects successively at different distances, carrying a full spoon to the mouth, etc.

The principle of these movements has been applied to the inferior extremities by Hirschberg in cases of locomotor ataxia. The author

details two interesting cases, and refers to many others occurring in the service of Dujardin-Beaumetz, in which the method gave satisfactory results. Hirschberg's conclusions are as follows:

1. The ataxic movements of tabetic patients may be markedly ameliorated by the method of Frankel.

2. The exercises of such gymnastics increase and develop the muscular power of the affected extremities.

3. The exercises, in which the muscular contractions are placed under the control of the will-power of the patient, ameliorate the co-ordination of the movements.

4. By encouraging the patient and inspiring him with confidence regarding the use of his limbs, we may relieve his mind from morbid ideas (pathophobia), a frequent cause of the gravity of motor functions in tabetic patients.

5. This treatment is indicated in all the stages of *tabes dorsalis*. The best results, however, are obtained before the patient has ceased to be able to walk.

6. The treatment is to be considered contra-indicated in the *tabes dorsalis* of a rapid march, —that is, when the symptoms are developed in less than two years, when the general condition of the patient is poor, and especially when the articulations are affected.

7. This treatment does not exercise any influence on the cardinal symptoms of *tabes dorsalis*, except the ataxia of the movements.

THE VALUE OF THE INJECTION OF ORGANIC LIQUIDS IN THERAPEUTICS.

Apropos of the abstracts which have been published during the last few months in the THERAPEUTIC GAZETTE concerning the use of extract of thyroid gland, or other glands, or other portions of the animal economy, in the treatment of various diseases, an editorial summary in the *Boston Medical and Surgical Journal* for January 12, 1893, is interesting, as showing clearly our present position in regard to this interesting question.

In a recent article on "The Progress of Therapeutics in 1892," the introduction of the injections of organic liquids, as being an advance step in the treatment of certain nervous diseases, and in particular of locomotor ataxia and neurasthenia, is discussed by Dujardin-Beaumetz.

Since the date of Brown-Séquard's first communication (June, 1889) there has been great progress, both in the preparation of these organic liquids and in their therapeutic applications.

To-day, thanks to Arsonval's sterilizing methods and painstaking technique, organic liquids which are absolutely aseptic can be obtained, and are furnished by a sufficient number of reliable pharmacists. If syringe and needle are sterilized, and suitable care be taken, these injections cause no local irritation, or, at least, no harm.

Dujardin-Beaumetz has the past year made in Cochin Hospital a great many of these injections, using either Arsonval's organic liquids or such as were made in the Cochin laboratory. In not a single instance was the injection attended with any local inflammatory accident. The greatest danger results from an alteration of the liquids; hence it will not do to use solutions that are at all turbid. The injection material is now put up in vials hermetically sealed, there being just enough in each vial for one injection.

For the testicular liquid vaunted by Brown-Séquard there have been of late substituted macerations of the brain and cord, introduced by Constantin Paul under the name of "nervous transfusion liquid;" then extracts of the thyroid gland, the pancreas, and the kidney. As to the effects of these injections, good observers declare that there is no difference between the action of the testicular extract and that of the spinal marrow, prepared as Constantin Paul advises. This action is summed up in one sentence: "The tonicity of the entire economy is improved." This, says Beaumetz, is undeniable, and is remarked alike by patients without as by those with organic lesion.

In patients afflicted with cerebral or spinal sclerosis, who have been treated by injections of gray nerve-matter, there is prompt disappearance of their pains, and especially of the *douleurs fulgurantes*. In multiple sclerosis the tremblings are alleviated. Dujardin-Beaumetz would not be willing to affirm that a positive cure has in any single instance been obtained, although Brown-Séquard, at a late meeting of the Society of Biology, declared that complete cure in locomotor ataxia was the rule where the testicular injections have been used. Beaumetz is disposed to doubt whether the cases to which Brown-Séquard refers as cured were really cases of sclerosis of the brain or cord. It is well known that hysteria furnishes instances of pseudo-ataxia and pseudo-sclerosis.

It may be, with still greater reason, maintained that the pretended cures of cancer by

the injections of organic liquid are cases of mistaken diagnosis. What can, however, be affirmed is, that in certain cases of marasmus at advanced periods of cachectic disease, cancer, cholera, etc., tonic effects amounting to a remarkable amelioration have been obtained.

In neurasthenia and nervous prostration from overwork, and in hysteria, injections of these animal extracts have given especially gratifying results.

Physiologists and physicians are naturally puzzled as to the *modus operandi* of these injections; in fact, the exact composition of the organic liquid is unknown, and it is not possible to conjecture what element, if any, produces the favorable therapeutic results. Hence attempts have been made to get rid of the difficulty by employing some one isolated principle obtained from the animal extracts. Much has been written about Poehl's spermine, designated as the true remedial agent of the testicular liquid, and which Rostchinin, in the London *Medical Record*, declares to be "true spermine," having used it to advantage in nervous affections, diabetes, pulmonary tuberculosis, and collapse, and for which he predicts a brilliant future. Another attempt in the same directions has been made at Brussels by Crocq, who makes use of the neutral phosphate of sodium in two-per-cent. solution in cherry-laurel water. He injects from 1 to 2 cubic centimetres of this solution, and claims very powerful tonic effects. He affirms that these injections have the same effects as the testicular liquid or Constantin Paul's maceration of gray nervous matter, being curative in purely functional and truly palliative in organic affections of the nervous system.

Dujardin-Beaumetz remarks how difficult it is to decide as to the value of these organic liquids. There have not yet been a sufficient number of clinical trials to warrant a deliberate and definite judgment; but if any *a priori* reasoning is admissible in considerations of this kind, it must be admitted that the principle on which this medication is founded is very strange. To inject in a diabetic patient an organic liquid from the pancreas, or in a patient affected with urinary insufficiency a glycerite extract from the kidney of an animal, can neither, in the one case, restore to soundness the atrophied pancreas, nor in the other, the altered and cirrhosed kidney. One cannot but think that in such cases something in the nature of hypnotic suggestion has had something to do with the result. The notion that one may by such injections restore or make compensation for an organ diseased or destroyed is absurd. But the appeal must be made to clinical facts, and the new methods must be tested under much more rigorous conditions, with carefully-selected typical cases, before we can definitely judge of their merits.

THE TREATMENT OF DIABETES MELLITUS BY MEANS OF PANCREATIC JUICE.

Dr. Hector W. G. Mackenzie, in the *British Medical Journal* for January 14, 1893, states that in the *British Medical Journal* for January 7, Dr. Mansell-Jones suggests that, as the juice of the thyroid gland appears to be almost a specific in myxœdema, pancreatic juice, administered before or after meals, should be given a fair trial in diabetes, as this disease, he adds, in most cases, appears to be due to disease or disordered function of the pancreas.

Neither pathology nor physiology, however, lend much encouragement to the hope that diabetes mellitus will prove tractable in such a simple way. In the first place, the pathogenesis of this disease is much more complex than that of myxœdema, and disease of the pancreas accounts for probably only a fraction of the cases of this malady. In the second place, even if it were a fact that in most cases diabetes was due to disease or disorder of the pancreas, the analogy of this doubly-active gland, both excreting and secreting, with the ductless thyroid gland is not a very close one. There is some reason, however, on theoretical grounds, for the belief that pancreatic juice might have some beneficial effect even in non-pancreatic diabetes.

The recent researches into the pathology of the pancreatic form of diabetes mellitus, of which a most interesting account was given by Dr. Vaughan Harley in the *British Medical Journal* for August 27, 1892, make it very probable that, in addition to the well-known tryptic, diastatic, fat-splitting, and milk-curdling ferments, a glycolytic ferment is also produced by the pancreas. Assuming the existence in the normal pancreas of this latter ferment, it is possible that the administration of a pancreatic extract by the mouth might have some beneficial action in diabetes mellitus by assisting to destroy the sugar in the blood. Acting on this idea, therefore, Mackenzie anticipated Dr. Mansell-Jones's suggestion, and for some time past has been treating in a tentative way two pronounced cases of diabetes mellitus under my care at the Royal Free Hospital, by the administration of liquor pancreaticus, in ½-ounce doses, given three

.times a day, immediately after food. It is the generally-received opinion that, when given in this way, the liquor has no appreciable digestive power, so that we may put the latter effect on one side. No other medicine was given after this treatment was started, and in every respect the patients remained under the same conditions as before.

In both cases the patients have assured me they have experienced benefit from the treatment. He should not have attached so much importance to their statements had it not been that, without any suggestion on his part or collusion on the part of the patients, who attended on different days, there was a remarkable agreement in the accounts they gave of this beneficial effect. They both said they had lost to a great extent their feeling of lassitude and languor, and felt stronger in every way. Their thirst, moreover, had considerably lessened, and they had passed a smaller quantity of urine. These beneficial effects, moreover, have continued. The specific gravity of the urine and the relative amount of sugar have, on the other hand, not been affected.

As to an in-patient under the care of his colleague, Dr. Samuel West, his house-physician, Dr. Rendel, stated that since the administration of liquor pancreaticus the amount of fluid imbibed during the twenty-four hours, which had previously averaged twelve pints, had fallen to six pints, with a similar decrease in the amount of urine passed.

In a disease like diabetes we must be thankful for even small mercies. Mackenzie would rather find an improvement in the general condition of the patient, increased strength, diminished thirst, and diminished quantity of urine as a result of treatment, than a mere diminution of the amount of sugar in the urine without such improvement. He would have preferred, of course, to have found both results. It is evident that liquor pancreaticus is no specific, but the effects in these cases are encouraging enough to induce us to make further trial of it, and it is possible that in cases of true pancreatic diabetes the benefit might be greater.

THE TREATMENT OF DIABETES BY PANCREATIC EXTRACTS.

NEVILLE WOOD contributes another paper on this subject to the *British Medical Journal* for January 14, 1893, in which he says: This plan, proposed in the *British Medical Journal* of January 7, occurred to me early last year as worthy of a trial from certain theoretical considerations. I append a brief summary of two cases, in which the method was employed at my suggestion.

CASE I.—This case at the Chelsea Infirmary was kindly placed under the treatment by Mr. Moore. It was of the so-called pancreatic type. A boy, aged thirteen, whose father had recently died of diabetes, had suffered from symptoms of diabetes, before beginning this treatment, for six months. From January 1, 1892, he was placed on diabetic diet, and was given first codeine, from which he received no benefit, and then morphine, under which he improved. The zymin treatment, with diet as before, was begun May 18. His general condition was bad; appetite not ravenous; thirst great; weight, five stone ten and three-quarters pounds; quantity of urine in twenty-four hours about ninety-nine ounces; specific gravity 1036; sugar, estimated at 6.5 grains per ounce. Zymin was given in increasing doses, with the subsequent addition of sodium bicarbonate, and finally pancreatin pills, coated with keratin, were substituted. A daily record of the amount and specific gravity of the urine was kept, and quantitative estimations of sugar were made with Fehling's solution. The treatment was continued till August 21, when he left the infirmary. Unfortunately, owing to deception on the part of the patient, and dietetic indiscretions, which caused diarrhœa on more than one occasion, many of the observations are valueless and, with the amount of comment necessary, would be out of place in this summary. What is certain is, that his general condition vastly improved, his weight increased seven and a quarter ounces, and thirst diminished. During the first ten days of treatment the amount of urine in twenty-four hours averaged seventy-eight ounces, and for the last ten days before leaving it averaged thirty-five ounces, while the specific gravity for the same periods averaged 1036 and 1027 respectively. The first reliable quantitative estimation of sugar, made May 20, gave 6.5 grains to the ounce; the last, made at the end of June, 4.5 grains. The boy was readmitted November 5, and is still in the infirmary. He is improving under opium, but has not reached the standard of last summer under the pancreatic treatment.

No definite deduction can be made from this case, owing to the facts already mentioned,—that he was improving at the time zymin was commenced, and the intractability of the patient, while the summer weather and the continuance of restricted diet were in his favor. Its value is also less because press of work pre-

vented me from making a sufficient number of quantitative estimations towards the close of the case. Nevertheless, the improvement in general condition, and in some of the cardinal symptoms of the disease, while he was taking pancreatic preparations, compared with the periods under opium and the alkaloids, are perhaps worthy of record.

CASE II.—The observation of this case at St. George's Hospital was kindly permitted me by Dr. Cavafy. A woman, aged twenty-four, who gave no family history of diabetes, had suffered from symptoms for about four months before beginning pancreatic treatment. Previous to this, diabetic diet and codeine were given. Pancreatic treatment was commenced June 10, 1892, and continued till she left the hospital on July 19. The diet was not changed, and zymin, etc., were used, as in the previous case. At the outset the general condition was that of debility, the amount of urine varied between 2500 and 4000 cubic centimetres, specific gravity about 1034, and the percentage of sugar 7. The general condition of the woman improved, and she gained three pounds in weight, but she complained of increased thirst. The amount of urine remained about stationary, and while the specific gravity ranged lower, the percentage of sugar increased to 10. She went to the Convalescent Hospital at Wimbledon, and left there for her home September 21, still further improved in her general condition. On September 26 she was readmitted at St. George's, rapidly fell into coma, and died on the 27th. The necropsy showed no notable lesion, and the pancreas is described as "not abnormal, soft, like the rest of the body."

In this case, of the cardinal symptoms, diuresis was unchecked, while thirst and the excretion of sugar increased. The increase of weight is possibly attributable to the better assimilation of her food, perhaps of the freely-supplied hydrocarbon element. The fall in specific gravity may perhaps be explained on a somewhat similar hypothesis.

From the observation of these two cases I have little hope that diabetes can be influenced by pancreatic preparations in the same way that myxœdema is by thyroid juice. A subsequent perusal of the interesting monograph on "Pancreatic Diabetes," by Dr. Thiroloix, has inclined me to agree with that author, while in some cases pancreatic lesion is a probable factor, it is not the chief one, and we must look for the essential pathology in some part of the nervous system, perhaps in the great sympathetic ganglia of the abdomen.

THE NEUTRAL SULPHATE OF DUBOISINE IN MENTAL DISEASES.

The therapeutics of this drug have of late attracted considerable attention, both in Italy and in Germany. It seems to have been clearly made out by a large number of authorities in both countries that duboisine has a decided sedative and hypnotic action, especially in cases of insanity. An excellent account of this drug is to be found in a paper by Belmondo, published in the *Riv. Sperim. di Freniatria*, April, 1892. There seems to be some doubt whether the drug acts in every case as both a sedative and hypnotic; it seems probable that this is the case in most instances.

DRS. MAZZOCCHI and ANTONINI (*Riforma Medica*, November 15, 1892) have tried the remedy in their asylum at Bergamo, extending their observations over a considerable time in order to compare patients treated in this manner with others subjected to the ordinary methods of treatment. Twenty men and ten women received the injections of sulphate of duboisine. Nearly all of these exhibited symptoms of aberration, varying from a slight exaltation of ideas to furious mania. More than two hundred injections were given, varying between ½ and 2 milligrammes, but never exceeding this higher limit in twenty-four hours. The injections were in no case followed by unpleasant phenomena, such as vomiting, vertigo, or visual hallucinations, but in nearly every instance there occurred, a few minutes after the injection, mydriasis, a sense of general weakness, and a diminution of the pulse-rate. In two-thirds of the cases a full hypnotic effect was realized fifteen or twenty minutes later, the sleep lasting for five or six hours. The drug does not appear easily to lose its effect through the establishment of tolerance, for one patient, within the space of two months, received as many as fifty doses of 1 milligramme, this being as efficacious at the end as at the beginning of the period. There seems to be no advantage, therefore, in giving larger doses. As a sort of control, other patients were treated with injections of atropine or morphine, but in no case were the results as good. In order also to guard against the influence of suggestion, injections of water were also occasionally substituted for those of the drug, but in every case without result. The authors agree also with Belmondo in asserting that the intelligence may improve very markedly as the result of the injections; it was certain, too, that they had a markedly quieting effect in the cases of violent mania. It is too much to say, however, that all such cases re-

ceived marked benefit. There were a few in which no very distinct action was evident. Individual peculiarities seemed to militate against a uniformly successful record, but this is nothing more than would be expected. Complete indifference was only manifest in a single case, one of severe mania with delirium; but this is not sufficient to prevent the authors from having a high opinion of its efficacy in the treatment of insanity.

DUBOISINE IN HYSTERO-EPILEPSY.

Recent observations appear to show that in duboisine we have a drug which may be of considerable value in hystero-epilepsy. Cases have been recorded by Samuely and Belmondo in which this drug produced good results when no other treatment did any good. Professor Pietro Albertoni has recently recorded three similar cases in which the same treatment was adopted with success. The history of one of these is as follows: The patient, a girl of twenty-three, had very frequent attacks, often as many as three in an hour, which began with a slight convergent squint, loss of speech, and partial loss of consciousness. All the muscles then rapidly became rigid, especially those of the neck, leading to marked opisthotonos; the pulse became also arrested during frequent convulsive attacks, being increased in frequency in the intervals. Recovery from these attacks was, as a rule, rapid, but a great number of drugs, especially morphine and atropine, had been tried without producing any effect as regards diminishing the frequency of the attacks, and the family was in consequence in great alarm. Injections of duboisine were then commenced, with the result that half an hour after the first injection of .0004 gramme the patient went to sleep, remained the whole night in the same condition, and had only three attacks during the next day. Injections of .5 milligramme were given every evening for a few days more, with the result that the convulsions ceased altogether, and general treatment removed the general constitutional disturbance. The other two cases were very similar. Albertoni thinks, therefore, that, judging from his own cases and those of Samuely and Belmondo, duboisine may be considered almost a specific against hystero-epilepsy.

THE THERAPEUTICS OF TETANUS.

A glance at the medical literature of the past ten years will show that the number of drugs which have been recommended during this period as curative of tetanus is very large. Professor Albertoni has taken the trouble to classify the results obtained by various treatments in a large number of cases, and by this means has arrived at the following conclusions, which are of considerable general interest:

1. That tetanus is not half such a fatal disease as one has been inclined to think.

2. That it is cured by the most varied methods of treatment.

This is tantamount to admitting, according to a well-known therapeutic canon, that the disease has a tendency to spontaneous cure.

According to the statistics of Sormani, the mortality from the disease in the Italian hospitals was about forty-four per cent. during the quinquennial period,—1882–87. In other words, fifty-six cases out of every hundred recovered, and figured in the records of therapeutic triumphs. Now, it is a fact which has been known from the time of Hippocrates, that cases of tetanus may be classed under two headings,—those which run an acute, rapid course, and those running a slow, chronic course. It was recognized that these last cases often recovered spontaneously, and if we study modern records, it becomes plainly evident that it is just these cases which our modern drug treatment "cures." Among the recent specifics for the disease we may reckon paraldehyde, urethane, antipyrin, sodium salicylate, carbolic acid, and a number of similar drugs, and under these measures the mortality has sunk to about twenty-one per cent. The author hints that it is rather the introduction of antiseptic precautions than the application of new remedies which has improved our statistics. Quite recently a new idea for treatment has been tested. In 1890, Behring and Kitasato succeeded in rendering rabbits immune to tetanus by means of iodine trichloride. They found that the blood of such immunized animals had acquired the power of protecting other animals, and in rats of curing tetanus after symptoms had appeared. A clinical trial of such blood has, however, been made by Baginski, and more recently by Renon, but without success. The results obtained by Tizzoni and Cattani with their antitoxine—a substance derived from the blood of immunized animals by precipitation with alcohol—appear more satisfactory. But Albertoni protests that it is only the successes and not the failures which are published, and if this imputation be true, the method must be to some extent discredited.

If we consider the drug treatments alone, it appears that chloral has given the best results, whether we consider the relief of suffering or the cure of the disease. Verneuil asserts that

in the great war of 1870 this drug produced fifty per cent. of cures.—*Annali di Chimica*, vol. xvi., series iv., 1892.

STRYCHNINE DURING PREGNANCY AS AN AID TO LABOR.

JOHN MILTON DUFF, M.D., at the meeting of the Pittsburg South Side Medical Society, on February 13, 1893, made the following remarks in regard to the subject of "Tardy Labor." The discussion prompted him to speak of a remedy he has administered when occasion offered during the past few months. In speaking of it, he states that his observations have not been sufficiently numerous to justify him in giving a positive opinion. Nevertheless, whether by accident or otherwise, his results, so far in the majority of cases, have been most gratifying.

He referred to the administration of strychnine as a remedy preparatory to labor where there is general debility and want of muscular tone; in women who previously have had tardy labors from irregular and feeble uterine contractions and from want of tone in the auxiliary abdominal muscles; in women who have a history of post-partum hemorrhage, and of want of retraction and contraction of the uterus subsequent to delivery; in those who are subject to severe after-pains necessary for the expulsion of clots in the uterus. In all such cases a treatment should be instituted of gr. $\frac{1}{60}$ of strychnine three times a day, beginning from six weeks to two months prior to the anticipated time of delivery, and kept up until a week or ten days before delivery, when, if it is well borne, it may be increased, according to the judgment of the attendant, to gr. $\frac{1}{40}$ or gr. $\frac{1}{30}$ and in some cases to gr. $\frac{1}{15}$.

The cases in which he has administered it for the most part were those with which he had had experience of tardy labors, post-partum hemorrhage, and severe after-pains. In nearly all of them the improvement over past experiences was so great that the patients themselves were cognizant of it and expressed gratification.

THE USE OF CALCIUM CHLORIDE IN PNEUMONIA.

CROMBIE, in the *Indian Mail Gazette* for February, 1893, places on record twenty-two cases of acute lobar pneumonia which ran a singularly mild course on a treatment which consisted simply and solely of chloride of calcium in doses for adults of from 5 to 15 grains every four hours. These were, as a rule, cases of average severity, several of them being double pneumonia, one of these being fatal in a child, both of whose lungs were affected throughout. The remarkable feature in this series of cases was the subsidence of the fever, after two or three days of the treatment, to a practically normal point (notwithstanding the continuance of the physical signs), and the absence of all the distress and danger attendant on high temperatures. In not one of these cases was any antipyretic given after the commencement of the treatment with chloride of calcium. Another remarkable point noticed in several of them was the arrest of the disease in the stage it happened to be in when the treatment was begun. If this was in the first stage of pneumonia, the physical signs continued those of the first stage to the end, the crepitation and dulness gradually disappearing together, without the stages of tubular breathing, etc., occurring. If the treatment was begun in the stage of tubular breathing, this simply became less and less distinct as the dulness disappeared, and there was no stage of redux crepitation.

In several of the cases there was a distinct extension of the pneumonia while the patient was under the influence of the calcium salt, either to an adjoining portion of the same lung or there was an invasion of the other lung. This generally, when it occurred, gave rise to a temporary recrudescence of the febrile symptoms, which again quickly subsided.

The mortality in this series of cases was under five per cent.; and, according to Osler, hospital statistics show a mortality of from twenty to forty per cent. Of 102 cases treated at the Montreal General Hospital, the mortality was 20.4 per cent., while in the Charity Hospital at New Orleans it was 20.01 per cent. But the author does not need to go so far for comparative statistics, for he has those of the very hospitals where this series of cases was treated. He has the statistics of the Demerara Emigration Hospital for the years 1889, 1890, and 1891, which show 199 cases of pneumonia treated in that depot, mostly on the expectant plan, with 63 deaths, or 31.6 per cent. An analysis of the figures shows 202 per cent. of deaths among males, 31.2 per cent. among females, and 44.8 per cent. among children. In the Trinidad depot during the same year 11 cases of pneumonia were treated, with 5 deaths, 4 of the deaths occurring among 5 children attacked. In 1892, under the chloride of calcium treatment, there were in this depot 8

cases, 7 being children, with no deaths. Now, lest it might be said that these favorable results might have been due to a milder type of the disease in 1892, it may be mentioned that, owing to a misunderstanding, the chloride of calcium treatment was not adopted in one recent case in one of these hospitals, and this case went rapidly on to the formation of an abscess in the right lung, which the man is now slowly coughing up.

The author states that he is aware of the fallacies which surround observations such as he has recorded as the basis of this paper. He is aware, for instance, that the date of commencement of several of his cases is uncertain, and that the crisis may occur in pneumonia as early as the fifth, and is not unusual on the seventh and ninth days; and he would not present this new treatment if his cases had been less numerous than they are, or had exhibited less uniformity in what appeared to be their response to the treatment, or had he been unable to offer so striking a contrast, as regards mortality, with cases of the same class treated otherwise in previous years. It may be that the author has been the sport of circumstances, and has been merely treating a series of mild or fortunate cases of pneumonia, and only time can show whether this has been so or not. But it seemed to him that it would be no longer justiable for him to withhold his experience of the treatment of pneumonia with chloride of calcium from the profession, and he has accordingly placed his cases before the profession, leaving it to them to decide whether they are sufficiently encouraging to justify giving the new treatment an honest trial. His remarks apply only to lobar pneumonia. In the few cases of lobular pneumonia in which he has used it, it did not appear to be of any benefit.

He states that he has carefully avoided hazarding any opinions as to a possible explanation of the action of chloride of calcium in thus modifying the progress of pneumonia, preferring that the profession should judge the treatment rather by the results which he has been able to record; but he feels that his paper would not be complete without the remarks which he has to offer in that direction, and in doing so calls attention to a more recent work in the pathology of pneumonia, and which seems to have a distinct bearing on this explanation. The first of these is the work of the brothers Klemperer, who have been able not only to produce immunity from pneumonia by the subcutaneous or intravenous injection of filtered cultures of the pneumococcus, but have also been able to cure artificially-induced pneumonia by the injection of the serum of an animal which has been so rendered immune. The result was a fall of temperature within twenty-four hours from 40° or 41° C. to normal. They believe that the pneumococcus produces a poisonous albumin (pneumotoxin), which, when introduced into the circulation of an animal, causes elevation of temperature and the subsequent production in the body of a substance (antipneumotoxin) which has the power of neutralizing the poisonous albumin which is formed by the bacteria. In pneumonia there is a constant absorption of the pneumotoxin into the circulation from the lungs. This goes on producing the high fever of pneumonia, until the antipneumotoxin is produced in sufficient quantity to counteract the pneumotoxin, and the result is the crisis and the fall of the temperature to the normal point. They demonstrated that the serum of the blood of patients after the crisis of pneumonia contained this antitoxic substance, and was capable in a fair number of cases of curing the disease when injected into infected animals, and they have even tried it in the human subject with promising results, the temperature falling either permanently or temporarily after the injection of four to six cubic centimetres of serum. The results obtained by Crombie with chloride of calcium very closely resemble those described by the brothers Klemperer. The fall of temperature after its use was too constant to have been accidental, and the author, therefore, refers to other recent work elucidating the intimate nature of the vitality of the blood, and the effect which chloride of calcium has been found to exert on it, taken in connection with the pathological changes which it has been found to undergo in pneumonia.

Crombie refers especially to the work of Green, who discovered that the coagulation of blood-plasma is hastened by the addition of a minute trace of a calcium salt, and that, indeed, calcium is essentially necessary for the formation of a blood-clot; and it was a knowledge of this effect of chloride of calcium—namely, its power of facilitating intravenous blood coagulation under healthy conditions—which made the author cautious in administering it in his first case, for as every physician knows, pneumonia is characterized by an increase of fibrin in the blood, and the liability to the formation of clots in the vessels, at least in the death-struggle. Pekelharing, working on Green's discovery, has found that, among other substances, "peptones" have a strong affinity for calcium salts, and that the toxic action of these substances is due to their removing from the tissues the cal-

cium salts which are essential for the healthy continuation of nearly all the vital processes. They cause at the same time a loss of coagulability of the blood, a fall of blood-pressure, stoppage of secretions, and, if the dose is large enough, death ensues. All these symptoms are prevented if into the vessels of the animal a small amount of chloride of calcium is injected as well as the peptone, and a healthy condition of the blood is thus maintained; and for this healthy state of the blood the presence of a small quantity of chloride of calcium appears to be absolutely necessary.

Now we have, as a constant phenomenon of pneumonia, the presence of peptonuria, and it is not impossible that the action of the chloride of calcium in the treatment of pneumonia may consist in its neutralizing the toxic action of these peptones or albumoses circulating in the blood, if it be not some more intimate action on the blood, the vitality of which we do not as yet know much more than the necessity of the presence of calcium chloride for the existence of the fibrin element. It may be that the pneumotoxin already spoken of has poisonous affinities similar to those of the peptones, and that the calcium salt neutralizes them in a similar way.

THE INJECTION OF GUAIACOL IN PULMONARY DISEASES.

In a clinic given by PETER he recommended the employment of guaiacol in phthisis, administered by the hypodermic syringe. The formula which has been used by Labadie-Lagrave and others is as follows:

℞ Olive oil, ℥iv;
Guaiacol, ℥iss;
Iodoform, gr. xv.
Of this mixture 20 to 40 minims are injected daily.

Under its influence the expectoration is decreased, there is a diminution in the fever and sweats, and relief of the bronchial symptoms.

Weill uses much larger quantities than those given in the above formula,—namely:

℞ Sterilized olive oil,
Guaiacol, of each, ♏vii.
This is given at each dose.

The formula which has been used by Peter is as follows:

℞ Sterilized olive oil, ℥iv;
Guaiacol, ℥i;
Iodoform, gr. lxxv.
Of this mixture about 30 minims are injected.

Peter cites a case in which an oil embolism accident occurred in the person of a journalist, aged fifty-five years. The patient suffered from debility, cough, and oppression, and the expectoration was abundant and contained bacilli. The injection which was given amounted to 30 to 50 minims a day. After these injections had been continued for some time a congestion of the right lung temporarily interrupted the treatment. About a week later another injection caused intense dyspnœa, marked cyanosis, coma, and death.

At the autopsy there was found a large amount of oil in the blood. Care should, therefore, be taken that the injection is not sent into a blood-vessel. As guaiacol is a volatile substance closely allied to the balsams, it is largely eliminated by the air-passages and produces a local action upon the lung, diminishing the catarrhal processes. Hyperæmia and hæmoptysis, with acute inflammation of the lung, rather contraindicates its employment, but under its influence there is generally an increase in appetite. Guaiacol gives very good results in the treatment of chronic bronchitis, fetid bronchitis, atelectasis, and temporary gangrene, and Peter states that it is preferable to creosote.—*Revue de Bibliographie Médicale*, February 10, 1893.

THE TREATMENT OF OBESITY BY DIET.

In an article in the *Edinburgh Medical Journal* for October, 1892, DR. TOWERS-SMITH, after detailing a number of cases treated by the method which he usually applies, recommends the following dietaries:

DIET FOR AN EXTREME CASE.

First Period, Fourteen Days.

Breakfast.—Tea or coffee, with saccharin, if desired, in lieu of sugar; bread or biscuits made from soya bean, two ounces; grilled white-fish or red meat, kidneys.

Lunch.—Cut from joint of beef or mutton, taking no fat, and one helping of green vegetables, avoiding only peas, beans, and all roots; soya bread or biscuit, one ounce.

Dinner.—Clear soup, white-fish, red meat, green vegetables as at lunch; soya bread or biscuit, one ounce.

DRINK.

First thing on wakening.—Tumbler of hot water with slice of lemon.

11 A.M.—Cup of bovril or clear soup.

Lunch.—Two glasses of claret or one ounce of whiskey with potash water.

5 P.M.—Cup of bovril or clear soup.

Dinner.—Two glasses of still hock or claret, or whiskey and potash.

Bedtime.—Cup of bovril or clear soup.

Mustard, pepper, salt, Harvey sauce may be taken.

Additions to No. 1.—Oysters, tongue, stewed fruit with saccharin; poultry, game.

Third Period, Thirty-one Days.

Additions to No. 2.—Toast in place of soya bread for each meal, two ounces; savory jellies, aspic of prawns, plovers' eggs, jelly.

Dessert.—A small quantity of fruit; blue-mould Dorset cheese.

No. 1.—Specimen Diet Chart.

This diet sheet is arranged in accordance with usual habits and family history as to obesity, and must be strictly confined to personal use.

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Diet Chart for Fourteen Days.

7 A.M.—Sip slowly a tumbler of hot water, with lemon-juice.

9 A.M., *Breakfast.*—Two cups of tea or coffee without sugar or milk, taking saccharin if needed; one ounce of soya bread or biscuit; grilled white-fish, steak, chop, kidneys.

11 A.M.—Tumbler of hot bovril or clear soup.

1.30 P.M., *Lunch.*—Cut from joint of beef or mutton, with one helping of either cabbage, spinach, tomatoes, asparagus, French beans, plain lettuce, and water-cress; one ounce of soya bread or biscuit.

5 P.M., *Afternoon Tea.*—Cup of tea *à la Russe*, or cup of bovril.

7.30 P.M., *Dinner.*—Clear soup, white-fish, red meat, vegetables as at lunch; one ounce of soya bread or biscuit.

Bedtime.—Tumbler of hot bovril or clear soup.

1. All food should be plainly cooked (grilled for preference); no fat, skin, or rich gravy should be taken.

2. Drink claret, still hock, burgundy, Scotch whiskey, and potash water.

3. Exercise: A moderate amount of walking should be done daily.

4. Condiments: Mushroom catsup, Worcester and anchovy sauce, mustard, pepper, and salt may be taken.

PHENOCOLL IN MALARIA.

Phenocoll appears to have been first introduced as a remedy by Von Mering in 1891, who recommended it on account of a supposed antipyretic action, and also as a valuable remedy in rheumatism. Albertoni, in repeating these experiments, was not inclined to have such a high opinion of phenocoll for these purposes. He tried it, however, in two cases of malaria, with such striking results that he recommended a more extensive trial by practitioners dwelling in the notoriously malarial districts of Italy. The matter was taken up, with the result that reports on one hundred and thirty-eight cases in which the drug had been used became available, these including cases of quotidian, tertian, and quartan ague. Nearly all of the first class were rapidly relieved, and the results were also highly satisfactory in the cases of tertian ague. In those of the quartan form the results were not so uniformly successful, but did not compare very unfavorably with those obtainable with quinine.

DR. DALL'. OLIO (*Gazz. Degli Ospitali*, January 14, 1893), from his own experience with phenocoll, arrives at the following conclusions:

1. Phenocoll is at least as effective as quinine in cases of malaria.

2. As a general antipyretic and analgesic it does not compare at all with the remedies already known, notwithstanding that this is contrary to the opinion of Cohnheim.

3. Phenocoll does not give rise to the unpleasant toxic symptoms, such as the ringing in the ears and the cutaneous eruption sometimes produced by quinine.

4. Phenocoll will succeed in a certain proportion of cases in which both quinine and Fowler's solution are useless.

5. Being a synthetic product, there is no danger of the supply running short, as possibly might happen in the case of quinine.

6. The taste of the drug is not so pronounced as that of quinine, and can easily be masked by syrup. It is, therefore, well taken even by children.

THE THERAPEUTICS OF OZÆNA.

DR. ARTHUR KUTTNER (*Therapeutische Monatshefte*, March, 1893) cannot agree with Grünwald when he claims that there is no genuine ozæna. Kuttner has for a long time made a practice in all such cases of searching for bone caries and empyema. However, by far the greater number prove that there is a genuine disease, although its cause has never

been determined. He does not find the name recently brought into use—"rhinitis atrophicans fœtida"—as suitable as the old one, which is just as well understood as cholera and typhoid. Demme reported ten cases treated with the Braune-Laker mucous membrane massage and pyoktanin. In seven of these cases the cure was excellent. By a systematic and careful use of therapeutics the disease can be masked, even if it is not cured. This is done by a most careful toilet of the nose. Kuttner cites one patient who suffered from ozæna for fifteen years. She was self-willed and would not obey directions, and simply drew salt water into the nose occasionally. The crusts gradually disappeared as well as the foul odor, and there has been no return, although five years have elapsed. Nasal washings are liable to develop acute inflammation of the middle ear, and they fall thus into disuse, but are brought into use again, in spite of the danger to the ears. Kuttner has found an apparatus for inhaling steam of great value to him. He adds medication to the water, and has found a solution of soda the best solvent. A cut makes his description of the apparatus quite clear. He has used it for months for many patients, but does not claim to have attained any cure, although he thinks the patients who inhale twice or three times daily are able to keep their pharynx perfectly clean.

THE ANTISEPTIC TREATMENT OF PERNICIOUS ANÆMIA.

In the *Edinburgh Medical Journal*, Dr. G. A. Gibson contributes an interesting article on the treatment of pernicious anæmia by antiseptic medication of the intestine. This treatment is based upon the belief of Hunter that pernicious anæmia is due to excessive hæmolysis. The intestinal antiseptic employed by Gibson was beta-naphthol. He states a number of cases in which the remedy was employed, and in which he believed a septic condition of the intestines existed, in all of which a great increase took place in the number of red blood-corpuscles.

He administers beta-naphthol with some one of the bismuth preparations, preferably the salicylate of bismuth. The dose of beta-naphthol employed by Gibson was 2 grains three times a day, after food. No other change was made in the surroundings, food, or occupation of the patient. If the results obtained by Gibson are obtained by other practitioners, this method of treatment will become a most important one.

TREATMENT OF PERICARDITIS BY ICE-BAG.

In the *British Medical Journal* for February 18, 1893, is an abstract of an article by Dr. Leeds on this subject. He draws attention to the serious consequences, through damage to the cardiac muscle, of the formation of adhesions which too often result in pericarditis after apparent recovery. He pointed out that the present treatment of pericarditis was practically *nil*, or, worse than this, harmful, because very frequently the onset of this disease causes the physician to stop the use of the salicylates.

He has tried the application of the ice-bag over the pericardium in such cases with very good results. In his opinion it subjects the adjacent inflammation, relieves cardiac depression, and actually acts as a true cardiac tonic. Of course it should be used with caution, and the patient should not become chilled. The application is generally favored by the patient.

THE TREATMENT OF SYMPATHETIC EYE-INFLAMMATIONS.

Schirmer (*Graefe's Archiv*, vol. xxxviii., Part IV., p. 93) contributes an elaborate paper based upon a clinical and pathological study of the pathogenesis of sympathetic eye-affections. The following are his conclusions concerning treatment, which are abstracted in the *Ophthalmic Review* for March, 1893:

An eye which is blind, and which is in a condition to excite sympathetic inflammation, should be excised without waiting for any sign of sympathetic irritation. If the patient declines excision, as large a piece of the optic nerve as possible should be removed.

No definite rule can be laid down for those cases in which an eye threatens danger to its fellow while it retains some vision itself. The aim must be to estimate the probability of permanent retention of useful sight in the first eye and the amount of danger to the other; but these are questions to which no amount of care and experience can give a certain answer.

If sympathetic inflammation has already broken out, the exciting eye, if blind, should be removed. The removal of the exciting eye has never been proved to have an ill effect on the sympathetic inflammation, but has, on the other hand, appeared in many cases to act

beneficially in this respect, although the improvement may not be permanent. It is rational to remove the source of the infection, and thereby to obviate the chance of a further migration of germs from the one eye to the other. Moreover, the enucleation cuts short any sympathetic irritation which may be present, and thereby, in all probability, favors the subsidence of the inflammation.

If the sympathetic inflammation breaks out while the exciting eye still retains some vision, the exciting eye must not be excised, for it sometimes happens that the second eye is entirely lost, while the exciting eye recovers more or less, and permanently remains the seeing eye. It may even happen that both eyes may recover useful vision.

The sympathetic inflammation itself appears, according to clinical records, to be best influenced by sweating, mercurial inunction, warm compresses, darkness, atropine, and absolute rest of the eye. Retention of the patient in hospital for several months is the best safeguard against relapse. A sufficiently watchful care can seldom be insured in the patient's own home. Operative interference must be postponed as long as possible, for any operation during the inflammatory period is followed by increased exudation, and even when the inflammation appears to have completely run its course, an operation may light it up again.

CONSERVATIVE TREATMENT OF STRABISMUS CONVERGENS.

Dr. S. C. Ayres (*American Journal of Ophthalmology*, March, 1893) urges that in the treatment of a case of squint the first thing to do is to estimate the error of refraction and then correct it. The patient should be tested every year to see if the glasses are comfortable and satisfactory. In his judgment, except in very high degrees of squint, it is better for the child to wear the correcting lenses for a period of from one to four years before a tenotomy is made, because the primary results of many skilfully-made tenotomies are very satisfactory for a period of five years or longer, but later on a moderate degree, or even a pronounced one, of divergence is not uncommon. He would put glasses on a child as soon as possible after the squint becomes manifest, and has done so in a child only two and a half years old, and frequently in children three and four years old. Referring to children from three to nine years of age, he would make a trial of two to three years with glasses, and if then there was no improvement, would operate. As there is always a slight advancement of the eye after a tenotomy of the internal rectus, he thinks it better in many cases to make a limited tenotomy of both interni.

OPERATION FOR PTERYGIUM.

An editorial in the *Ophthalmic Record* for March, 1893, calls attention to the following method of operating: The growth can be removed in any one of the several ways recommended by different surgeons. This done, it is advised to make a vertical incision above and below, each about one-eighth inch long and about one-twelfth inch from the most projecting part of the denuded margin of the cornea. The two conjunctival stitches are taken in the usual way for covering the exposed sclera. When these are tied, the parts are brought together without throwing the conjunctiva near the corneal margin into folds. Under these circumstances there is the minimum of danger that any of the conjunctiva will become attached to the cornea before it is covered by epithelium. The corneal part of the pterygium should always be removed by traction; never by dissection.

FAVORABLE ACTION OF IRIDECTOMY IN ACUTE GLAUCOMA WITH LOSS OF LIGHT PERCEPTION.

Rabinowitch (abstract in *Archives d' Ophthalmologie*, January, 1893) describes a case of acute glaucoma in which the patient lost his sight completely. Eight days after the attack the author examined him, and found episcleral injection, diffuse opacity of both corneæ, dilatation of the pupils, ophthalmoscopic examination impossible, and entire absence of light perception. He states that, in spite of the absence of luminous perception, the patient distinguished with his left eye the movement of the hand at a distance of five or six finger-lengths. Double iridectomy was performed, and eight days later the ophthalmoscope revealed a glaucomatous excavation in the left eye and a pallid papilla without excavation in the right eye, the refractive media being perfectly transparent. As far as could be told, light perception was re-established in the left eye on the second day, and on the third day in the right eye. At the end of five weeks after the operation, O. D. V. $= \frac{1}{10}$. The visual field was contracted upward, downward, and within, and there was altered color perception, O. S. V. $= \frac{1}{10}$. Visual field scarcely contracted.

Normal perception of colors. This state of affairs continued at the last examination made two months after the operation.

THE TREATMENT OF DIFFERENT OCULAR DISEASES BY MEANS OF ELECTRICITY.

PARISOTTI (abstract in *Annales d' Oculistique*, February, 1893) thus summarizes the treatment of different ocular diseases by means of electricity:

Faradic Current.—Parisotti has obtained the best results in paralysis of rheumatic origin of the motor muscles. In one case of herpes zoster ophthalmicus the sensibility of the suborbital region was restored after three applications of a faradic current (the fixed pole at the point of exit of the nerve; the movable pole over the insensible area).

Continuous Current.—Good results have been reached (1) in a case of atrophic choroiditis of syphilitic origin. It is to be noted that the condition of the optic nerve was quite good, and for this reason Parisotti attributes the success of the action of the current on the optic nerve rather than on the choroid. The patient, who could no longer read a letter, was enabled to read, although with some difficulty, the print of newspapers. 2. In a case of interstitial trophic lesions of both corneæ with very remarkable hypotony. The author reserves the right to return to this case in another communication. 3. In a case of keratitis, the result of herpes zoster ophthalmicus, which improved after several applications of the continuous current, sensibility returned, and the ulcer was cured. In cases of nicotine amblyopia, even when the patient is in the second or third attack, and the optic papillæ show remarkable discoloration, the continuous current has a most happy effect. The author believes that it is these cases which have misled practitioners into the error that the electric current has a healing action on atrophy of the optic nerve. From what he has been able to observe, it seems to him that the continuous current has no other effect upon real atrophy of the optic nerve than to defer a little the progressive tendency to blindness.

Electrolysis.—Electrolysis seems to be favorable in the following cases:

1. *Trachoma.*—Parisotti inserts the contact needle, terminating in a very fine point, into the trachoma granules. Several *séances* are required.

2. He has also used electrolysis to hasten the cure of small ulcers of the cornea, especially transparent ulceration the result of absorption.

3. He has removed films from the cornea, the results being obtained only when they were entirely superficial, affecting exclusively, or nearly so, the epithelial layer.

4. In trichiasis, the author has, above all, obtained good results. One must use a current of just sufficient intensity (ten to twelve milliampères), and the point of the needle must be very fine. The papilla of the hair-follicle must be cauterized before removing the hair, which then can be plucked out without resistance, the best proof that it no longer retains any adhesions.

ELECTRICITY IN OPHTHALMOLOGY.

WILLIAM ELLERY BRIGGS (*Occidental Medical Times*, April, 1893) gives a *résumé* of the use of electricity in ophthalmology. With regard to the efficacy of the constant current in the treatment of diseases of the optic nerve and retina, he thinks that, if improperly used, it is an actively injurious agent; for example, when employed in inflammation of these structures, or during the stage preceding atrophy. In beginning atrophic conditions he has observed gratifying results; in late stages neither galvanism nor other treatment seems to have appreciable influence. In cases suited to the use of galvanism a current of from two to three milliampères is advised, passed from the anode on the closed lids, and the cathode either on the nape of the neck or in the subaural region. The sitting should continue five to fifteen minutes daily during a period of two or three months. He thinks that electricity is beneficial in the same class of cases which is improved by strichnine, and recommends it in tobacco amblyopia.

In muscular paralysis either the constant or the interrupted current is recommended. When the faradic current is applied, it may be administered directly over the affected muscle after cocainizing the conjunctiva, while the other pole should be placed in the subaural region or on the nape of the neck.

Electrolysis for removing misplaced cilia is described and recommended. The negative pole of a mild current should be connected with a fine needle and the positive pole attached to a sponge electrode, so that the patient can complete the circuit by touching it with the hand when desired. The needle is inserted in the hair-bulb and the circuit closed for a few seconds. The operator should gauge

the time the electrolytic action should be maintained by the amount of hydrogen generated, by which he can estimate the extent of destruction which has taken place. Electrolysis for setting up plastic inflammation in a chalazion sac is condemned, except in exceptional cases. The application of electrolysis with a view to setting up adhesive inflammation between the retina and subretinal tissues in detachment of the retina is referred to, but the belief expressed that the procedure will not result favorably.

The use of the galvano-cautery in the treatment of infective corneal ulcers is strongly indorsed, and the same procedure as a means of operating for ectropion and entropion of the lower lid is advised. The cautery knife should be brought to a white heat and drawn along the surface of the lid that needs shortening and a few lines from its border. The amount of cauterization must be gauged by the extent of the eversion or inversion to be corrected.

The paper closes with an account of the experiences of the author with the electro-magnet in removing pieces of steel from within the eye, and is illustrative of the advantages of this instrument over any other method of removing fragments of steel under these circumstances.

SCOPOLAMINUM HYDROCHLORICUM: A NEW MYDRIATIC, AND ITS USE IN OPHTHALMOLOGY.

According to RAEHLMANN (*Klinische Monatsblätter f. Augenheilkunde*, February, 1893), scopolamin is set forth by A. Schmidt, of Marburg, as an atropoid alkaloid from the roots of the *Scopolia atropoides*, and, like atropine, hyoscine, etc., belongs to the pharmacological group of the tropeine. As such, the instillation of its watery solution into the conjunctival cul-de-sac causes dilatation of the pupil. According to Landenburg, scopolamin, as well as hyoscine, are contained in hyoscyamus without being identical with the latter. Its chemical combination differs from atropine, hyoscine, etc. It is rather isomeric with cocaine, but naturally yields quite different integral products.

The preparation was given to Raehlmann by Professor Kobert, with the information that, after experiments on the lower animals by internal administration, scopolamin had exhibited an opposite effect to atropine, that its influence on the cortex of the brain was not stimulating, like atropine, but paralyzant. It did not increase the action of the pulse, like atropine, but, on the contrary, retarded its action. These last-named qualities lead to the expectation *a priori* that the local special effects of the new remedy would be different, especially those on the conjunctival vessels.

Raehlmann has made use of scopolamin both on the normal and the diseased eye, and reached the conclusion that, as a mydriatic and an antiphlogistic, it surpasses all other tropeines, including atropine. In strength of mydriatic effect it resembles hyoscine closely. The remedy does not produce the disagreeable after-effects and double vision which, according to his experience, occurred from the use of hyoscine, but it possesses all the advantages which belong to hyoscine in comparison with atropine.

During the last half-year he has employed the remedy in all cases in which atropine may be used, and has also used it by way of comparison with atropine, and has found that scopolamin is, in many cases, at least, equal to atropine, while in others it is entirely superior. But the circumstance which will insure scopolamin an enduring place among ophthalmic remedies is that it can be used for a long time in one of the solutions equivalent to the one-per-cent. atropine solution without producing the troublesome associated symptoms which so often make the continued use of atropine impossible. It is well known that atropine disturbs the appetite when used as an instillation for any length of time, either in moderate or large doses. He has never seen this or a similar effect from the use of scopolamin. It is only after very large doses of scopolamin that a feeling of dryness of the throat is produced,—a symptom which occurs after very moderate doses of atropine. The state of nervous restlessness, with or without a reddening of the face and quick pulse, which is so often found in patients treated with atropine, never occurs after the use of scopolamin. In cases of incipient atropine-poisoning, or in idiosyncrasy towards atropine, scopolamin, therefore, renders the best service, since it more than supplants atropine in its local effect and completely destroys its general effects.

In several cases of iritis, in episcleritis with infiltrations of the sclerotic, etc., when atropine could not be endured any longer, when the powers of the body were depressed on account of want of appetite, and the general condition was as unfavorable as possible, scopolamin not only produced an improvement in the disease of the eye, but it also maintained the general health. The remedy surpasses atropine in influencing pericorneal injection and pannus, and possesses especial advantages in suppurative inflammations of the anterior section of the eyeball. As is known, under these

circumstances, especially in suppurative keratitis, serpent ulcer, and irido-cyclitis, atropine often is inadvisable, while Raehlmann has found in five cases that scopolamin caused a diminution in the size of an hypopyon. The remedy seems to act more favorably than atropine on the suppurating tissues, probably by an effect on the blood-vessels. Scopolamin does not seem to act on the intraocular pressure; even if there is a pathological increase of the tension, the remedy can be borne. Therefore it is an indispensable drug in inflammatory conditions, especially in iritis, when they occur in glaucomatous eyes. He has used scopolamin with advantage in several cases of chronic inflammation with secondary glaucoma. In one case of absolute glaucoma, with great irritation, strong ciliary injection, and hyphæma, the pain ceased, the eye became quiet, and the blood from the anterior chamber disappeared under the influence of this drug. He has not tried scopolamin in acute glaucoma.

Hydrochlorate of scopolamin operates about five times as powerfully as atropine. It paralyzes, like the latter and in the same degree, the sphincter of the iris and the accommodation. The duration of the effect is ($\frac{1}{3}$ per cent. scopolamin compared with 1 per cent. atropine) about the same; perhaps somewhat shorter with scopolamin than with atropine. It is to be used in solutions of one to two *pro mille* ($\frac{1}{10}$ to $\frac{1}{5}$ per cent.), which solutions accordingly correspond in dose to ½- and 1-per-cent. solutions of atropine. Scopolamin operates best when used in divided doses. In a solution of two *pro mille* ($\frac{1}{5}$ per cent.) 6 or 7 drops may be administered daily to an adult, or used every fifteen minutes during one and one-half hours. With children correspondingly weaker solutions are to be used.

ANTIPYRIN IN OCULAR THERAPEUTICS.

WICHERKIEWICZ (*Recueil d' Ophthalmologie*, January, 1893; abstract *La Semaine Médicale*) has successfully used instillations of antipyrin in aqueous solution in about six hundred cases of different ocular affections, such as simple and granular conjunctivitis, dacryocystitis, episcleritis, scleritis, and chronic glaucoma. A solution of antipyrin (2 to 100) instilled into the eye at first causes a smarting sensation, which with more concentrated solutions is changed to a sharp pain. However, the smarting and pain last only a few moments, and soon are replaced by an agreeable sensation, due to the soothing action of the antipyrin, which reduces the congestion. In simple, acute, and chronic conjunctivitis, and particularly in those forms which follow in the course of influenza, Wicherkiewicz has obtained excellent results from instillations, repeated three times a day, of a weak solution (3 to 5 to 100). The secretion diminishes rapidly, and recovery succeeds in cases which have been unaffected by other means. After the treatment of acute granular conjunctivitis, antipyrin cannot replace nitrate of silver, but it would be very useful against the chronic forms of this affection, instilled three times a day in a solution of 25 to 100. He states that, injected into the lachrymal sac, it exercises a favorable influence upon dacryocystitis, and he has also found it useful in episcleritis and scleritis. Wicherkiewicz has obtained considerable reduction of pain and diminution of the tension of the globe in chronic glaucoma by the following treatment: While the patient's head is bent backward, several drops of an antipyrin solution (25 to 100) are dropped into the nasal canal corresponding with the injured eye twice a day. The drug was not found useful in cases of phlyctenular conjunctivitis, scrofulous keratitis, and blepharitis.

DERMATOL IN OPHTHALMIC PRACTICE.

ROSELLI (abstract in *Centralbl. f. Prakt. Augenheilk.*, February, 1893) has used dermatol in 25 cases of pustular conjunctivitis, in 14 of keratitis simplex or phlyctenularis, in 11 of parenchymatous keratitis, in 5 of trachoma and pannus, in 4 of blepharitis, in 3 of hypopyon keratitis with total infiltration of the cornea, and in 2 of croupous conjunctivitis.

He reaches the following conclusions:

1. Favorable results are reached by the insufflation of dermatol in eyes affected with pustular conjunctivitis of scrofulous origin, whether at the same time preparations of iodine are exhibited internally or not.

2. A good result is obtained further in corneal opacities and simple corneal inflammation, but internally preparations of iodine are exhibited, and atropine drops are also used.

3. In parenchymatous keratitis the insufflation of dermatol, in conjunction with the instillation of atropine drops and general medication, exhibits good results.

4. In corneal ulcers, especially those of traumatic origin, dermatol was useful, also in all cases of hypopyon after emptying the anterior chamber.

5. On the other hand, the drug was not valuable in cases of blepharitis.

6. Although it acted favorably upon vascular

pannus and corneal ulcers, no result from it was obtained in trachoma.

7. In two cases of croupous conjunctivitis insufflations of dermatol changed the character of the secretion in so far that it prevented the development of false membrane.

TREATMENT OF AFFECTIONS OF THE IRIS.

CHAUVEL (*Recueil d' Ophthalmologie*, January, 1893) continues his studies of various ocular affections and their treatment in military practice. He adopts the ordinary local treatment of iritis, prefers inunctions of mercury to any other method of administering this drug, and thinks that iodide of potassium is useful, combined with mercury, even in the early stages of syphilitic eye-affections. He deprecates the alternate use of myotics and mydriatics for the purpose of tearing loose adhesions.

TREATMENT OF TRACHOMA.

DÉBAGORI-MOKRIÉWITCH (abstract in *Archives d' Ophthalmologie*, January, 1893), in the treatment of trachoma, prefers a concentrated solution of the sulphate of copper to the bluestone itself. One or two drops of the above-mentioned solution are applied to the surface of the everted eyelids. In cases of very pronounced granulations, this author has successfully performed excision of the superficial layers of the follicles, followed by the application of concentrated solution of the sulphate of copper to the everted eyelids the next day. This excision is performed every two days, during the intervals applications of sulphate of copper in drops being made.

THE INFLUENCE OF NASO-PHARYNGEAL TREATMENT OF VERNAL CONJUNCTIVITIS AND CERTAIN TYPES OF KERATO-CONJUNCTIVITIS WHICH ARE ANALOGOUS TO THIS AFFECTION.

M. TÉTAN (*Paris Thesis*, 1892; abstract in *Annales d' Oculistique*, February, 1893) amplifies the work of Couëtoux, published in the *Annales d' Oculistique*, December, 1891 (for abstract, see THERAPEUTIC GAZETTE, vol. xvi. p. 199). The author states at the outset that vernal conjunctivitis is a variety of phlyctenular conjunctivitis. This affection and those analogous to it are related in their etiology with naso-pharyngeal lesions. The best results are obtained when the trouble is limited to the bulbar conjunctiva, and he insists upon clearing the nasal cavities of pathological matter and, above all, in rendering them antiseptic. In affections related to vernal conjunctivitis, the nasal treatment diminishes in proportion as the lesions attack the cornea, but none the less is very important.

DOUCHE OF FINE VAPOR FOR THE EYES.

M. CERESTO (abstract in *Annales d' Oculistique*, February, 1893) describes an apparatus which allows the eye to be held for a long time under the action of moist heat at a constant temperature. This treatment he has found most efficient in all diseases of the cornea with infiltration.

THE EMPLOYMENT IN OPHTHALMOLOGY OF MIXTURES OF SEVERAL ALKALOIDS.

M. BERGER (*Annales d' Oculistique*, February, 1893) recommends mixing several alkaloids in the same collyrium, as one obtains a solution of more active power than when it contains a single alkaloid, and at the same time uses a smaller quantity of each poison. He has employed a mixture composed of equal parts of solutions 1 to 100 of sulphate of atropine, 1 to 100 of sulphate of duboisine, and 1 to 100 of hydrobromate of cocaine. This mixture causes a mydriasis which he has been unable to obtain with any other substance. A mixture of

> Sulphate of atropine,
> Sulphate of duboisine, of each, .3 gramme;
> Hydrobromate of cocaine, 2 grammes;
> Distilled water, 100 grammes,

is a mydriatic at least as powerful as atropine in a solution of 1 to 100, without being so poisonous. A mixture of

> Sulphate of eserine, 1 gramme;
> Hydrobromate of pilocarpine, 2 grammes;
> Distilled water, 100 grammes,

is a very efficient myotic. A mixture of

> Hydrochlorate of cocaine,
> Hydrochlorate of pilocarpine, of each, 2 grammes;
> Distilled water, 100 grammes,

gives all of the qualities of the cocaine, with the further advantage that the difficulties of mydriasis and effect upon accommodation observed in the eye when cocaine alone is used do not exist.

SOME PRACTICAL POINTS IN THE TREATMENT OF GRANULAR LIDS.

G. STERLING RYERSON (*Ontario Medical Journal*, March, 1893) thinks that in the treatment of granular lids three objects should be kept in view: First, to allay the inflammatory complications and diminish secretion; second, to diminish and remove the conjunctival hypertrophy; and, third, to restore the general health, which is almost invariably impaired. To accomplish the first two objects he uses antiseptics and astringent caustics. When the conjunctival hypertrophy has diminished and the trachomatous process is evident, he uses Knapp's forceps after the instillation of cocaine. Boric acid is then continued, and the conjunctiva lightly painted with a solution of nitrate of silver 30 grains to the ounce. In his opinion weaker solutions are not useful. For home treatment he orders a boric-acid lotion, hot, every morning, and the following oxide at night:

℞ Hydrarg. oxid. flav., gr. iv;
Zinci oxid., gr. ii;
Thymol, ♏ii;
Camphor, gr. ss;
Cocaine muriat., gr. ii;
Vaseline, ʒi.
Rub up thoroughly.

After the acute stages mild astringent washes are best, in his opinion, and he prefers the iodide of zinc (5 grains to the ounce). He thinks it inadvisable to use astringents when the eye is acutely or subacutely inflamed, and then prefers heat and emollients, but deprecates the use of atropine.

ACUTE MERCURIAL INTOXICATION BY HYPODERMIC INJECTIONS OF THE CYANURET OF MERCURY.

M. DARIER (*Annales d'Oculistique*, February, 1893) contributes his experience to the Society of Ophthalmology of Paris concerning the hypodermic injections of cyanuret of mercury. Convinced as he is of the value of injections of the mercurial salts, he believes in guarding against large doses, especially when the cyanuret is used. He recites three cases. In one there was an idiosyncrasy and violent signs of intoxication; colic, diarrhœa, and vomiting appeared one hour after a single injection of .01 centigramme of cyanuret of mercury. In the second case, a girl in whom the dose of the injection had been raised progressively to .02 centigramme, signs of intoxication demanded diminution of the dose. In a third case, one of his colleagues attempted to give every day an injection of .01 centigramme. At the end of the sixth day signs of intolerance compelled the diminution of the dose. He believes that the quantity of 1 centigramme of cyanuret of mercury is the mean dose which gives the best results, but that one must not apply it at first. He always gives one-half of this amount, and reaches the dose progressively. In the discussion, other cases of violent mercurial poisoning were reported, and it was also pointed out how important it was to obtain a good preparation of the cyanuret of mercury.

CATARACT DUE TO ERGOT-POISONING.

KORTNEFF (abstract in *Archives d'Ophthalmologie*, January, 1893), basing his belief upon observations made during the epidemic of ergotism which raged in the district of Nolinsk during the years 1889 and 1890, considers himself authorized to form the following conclusions:

1. Cataract due to poisoning by ergot requires from three months to a year to become ripe.

2. The color and consistency of this cataract, among subjects who have attained their thirtieth year, does not differ at all from that of senile cataract.

3. Ergotism may produce a bad effect upon the vitreous body, an observation, however, which needs confirmation.

4. Discission of the half-liquid raphanic cataract may cause a relapse of the ergotism.

5. The fundus oculi in patients attacked by ergotism differs according to each period of the disease; thus, during the violent convulsive attacks, the retina shows a marked pallor, with contraction of the vessels. Sometimes there is a very pronounced hyperæmia of the papilla and the retina, the fundus having a tint of reddish clay.

REPORT OF ONE HUNDRED CATARACT OPERATIONS.

DR. JOSEPH A. WHITE (*Virginia Medical Monthly*, December, 1892) reports one hundred operations for the extraction of cataract, and thus discusses the accidents which occurred in this series and their treatment:

Accidents occurred thirteen times, the knife entangled in the iris twice, the lens was dislocated five times, and vitreous was lost six times.

When the *knife entangles in the iris*, his rule is to cut straight through the iris, which will

take off a little piece at the pupillary edge and may cause bleeding in the chamber; beyond this, the accident is of no moment.

Loss of vitreous, while apparently a serious complication, was followed by no bad results in these cases. It is singular that in every one of them the result was among the best, the healing process being uninterrupted. This accident is caused by a too forcible effort to evacuate the lens, or by pressure of the lids and eye-muscles, or by a sudden increase in the eye-tension, which sometimes occurs inexplicably and may rupture the hyaloid. It is unavoidable at times.

Dislocation of the Lens.—When dislocation of the lens occurred, it was extracted with a spoon or hook, as seemed best in each case. This accident may be due to the pressure being made too low on the eye, so as to push the lens up and tilt the lower edge *forward* instead of *backward*. The upper edge then tilts back behind the iris instead of through the pupil and into the corneal section; or it may be caused by rupture of the hyaloid, with dislocation, into the vitreous; or the suspensory ligament may be so weak as to give way as soon as the cystotome is applied to the capsule.

In one of his cases, the moment he attempted to rupture the capsule, the ligament gave way everywhere except at the top, the lens in the capsule jumped up behind the iris, and he could not remove it without such manipulation as threatened to empty the eye. He therefore let it alone, and when the wound healed, the lens was hung, as it were, to the roof of the eye behind the iris, the lower edge of the lens showing in the upper half of the pupil. Instead of making any attempt to remove it, he performed a small iridectomy downward and inward, and one year after the lens still hung in this position, and the patient had vision of $\frac{20}{40}$ with the correcting-glasses; but it gradually sagged down, and in November, 1891, he extracted the lens with a hook, with a loss of some vitreous, but a perfect result. His vision to-day is $\frac{20}{20}$. In one other case, where the lens became dislocated, and the patient was an unruly one, having no control of his eyelids, he let the eye alone until it healed up, and some weeks after removed the lens, with an equally happy result.

Complications happened in Twenty-two Cases.—*Prolapse of the iris* occurred both during the operation and during the healing process. Forty-six of the cases were operated on *without iridectomy*, nearly all of these among the later ones. But prolapse of the iris occurred both in cases *with*, as well as in cases *without*, an iridectomy. Sometimes the prolapse takes place during the operation; it is replaced, and may or may not occur again during the healing process. Usually, however, the prolapse occurs after the eye is closed, and is discovered the first time we examine it to see how it is doing. It may have seemed perfect when dressed,—the iris in place, the lips of the corneal wound in neat coaptation,—and yet we find a prolapse when we open it. How soon or late after the operation this happens we cannot say. What it is due to is equally uncertain. Restlessness of the patient, a slight increase of the tension, an irregular wound in the cornea, or a straight cut through the upper part of the section by turning the edge of the knife outward, may any of them facilitate a prolapse. It is hard to say what causes it, but it is a troublesome and sometimes a dangerous complication when it occurs. The way to remedy it is to cut open the conjunctival covering of the prolapsed portion, grasp it with the iris forceps, pull it out of the wound, and cut it off, as in making an iridectomy. It should not be shaved off with scissors along the line of the incision, certainly not before all irritation has subsided, because this leaves iris tissue still in the wound, and not only retards the healing process, but may cause after-trouble, such as iritis, etc.

Other complications that took place during the healing process were reopening of the wound, iritis, and capsulitis. In no case was there any trouble of the cornea, ciliary body, or vitreous; *not a single case of purulent* or even *fibrinous infiltration of the cornea* took place, and this may have been due to the strict antisepsis.

Iridectomy was done fifty-four times; in forty-six cases no iridectomy.

Some time back he always did an *iridectomy*, save in exceptionally favorable cases; now he never does an iridectomy, except in unfavorable cases, as when the iris will not respond to atropine, or there is increased tension, or adhesions to the capsule, or when the cornea wrinkles after the section is made, or when the nucleus is large and the cornea small.

Having had such favorable results in extraction with iridectomy, he was very slow in altering his mode of operating, but is satisfied that, all things being equal, it is better to do *without an iridectomy*, if possible. Of course the danger of prolapse of the iris is greater, but a judicious use of eserine or, preferably, pilocarpine will usually prevent it. His objection to eserine is that, if not used very carefully, it will set up iritis. With restless patients it is best to do an iridectomy, as the danger of prolapse of the iris is less, and the eye need not be examined for several days.

RESECTION OF THE CÆCUM, GREATER PART OF THE ASCENDING COLON, AND FIVE INCHES OF THE ILEUM FOR MALIGNANT DISEASE OF THE ASCENDING COLON.

LOWSON (*Lancet*, No. 3620) resected the cæcum, the greater part of the ascending colon, and five inches of the ileum for malignant disease of the ascending colon. On exposure of the tumor, the ileum and colon were divided and their ends respectively stitched, invaginated, and secured by a continuous Lembert suture, thus making two blind pouches. The continuity of the canal was re-established by means of Senn's bone-plates and lateral approximation. On the third day the patient had a light-colored, liquid motion, and regularly every day thereafter. Convalescence was uninterrupted. A year after the operation the patient was perfectly well.

THE LIMITATIONS OF CÆSAREAN SECTION.

MURRAY (*American Journal of Obstetrics*, April, 1893), after a careful discussion of the various methods of procedure in case of such disparity between the size of the living fœtus and the passage through which it must pass that natural delivery is impossible, ends his article with the following conclusions in regard to section:

1. Cæsarean section should be done always where the conjugata vera is below two and three-quarters inches.

2. It should be done in the Roberts or Nagele pelvis with marked deformity, or where there is fixation of one or both sacro-iliac synchondroses from diseases,—cases in which pubiotomy would be ineffective.

3. It is the best operation with diameters even larger than two and three-quarters inches, when the child's head is large, and could not probably pass with a living child if pubiotomy were done.

4. Where tumors or exostoses are present, the Cæsarean section or Porro operation is the best.

5. In cases of cancer of the cervix it should be chosen rather than pubiotomy, and should be done before labor sets in, so that no sepsis results.

6. The size of the child's head, in moderate contractions at the superior strait, will oftentimes be the determining factor as to whether an elective Cæsarean section or a pubiotomy be the best operation.

EMBRYOTOMY.

EDGAR (*American Journal of Obstetrics*, April, 1893) states that the indications for embryotomy may be considered under two headings,—namely, those which call for operation in case of a dead fœtus, and those which demand operation in case of a living fœtus. He concludes, after a careful discussion of the subject, that embryotomy is demanded when, the absolute indication for Cæsarean section being absent, the extraction of the fœtus undiminished in size would increase the dangers to the mother.

a. This indication includes moderate degrees of pelvic contraction, malpresentations, and positions, deformities of the fœtus, and slight obstruction in the soft parts.

b. In markedly contracted pelvis, with a transverse diameter at the inlet of at least three inches and a small conjugata vera,—under two and five-eighths inches,—embryotomy, in combination, if need be, with pubiotomy (embryo-pubiotomy), other things being equal, will be indicated.

c. In instances where the conjugata vera is much under two and five-eighths inches, when labor is obstructed by fixed pelvic tumor, extensive exostosis, or advanced cancer of the cervix, cœliotomy is to be preferred whether the fœtus be dead or alive.

d. Where the mother's condition demands rapid delivery, and the absolute indication for Cæsarean section is absent.

Embryotomy upon the living fœtus.

a. Embryotomy upon the living fœtus is indicated during labor whenever the relative indication exists and the physical signs indicate that the life of the fœtus is practically lost.

b. In certain rare instances, also, when the condition of the mother is such (temperature, pulse, dangerous thinning of the lower uterine segment), whether from repeated unsuccessful attempts at delivery or prolonged labor, as to render embryotomy by far the safer operation.

c. In obstructed labor due to monstrosities.

INTUSSUSCEPTION SUCCESSFULLY TREATED BY INSUFFLATION OF AIR.

SOULBY (*Lancet*, No. 3630) reports a case of intussusception successfully treated by insufflation of air. The boy, aged five years, had suffered from a slight diarrhœa for two days, passing scanty, blood-stained stools. He had colicky pains, vomiting, coated tongue, and sausage-shaped tumor in the right iliac region. The temperature was normal. Tincture of

opium was given; this relieved the pain, but was not followed by any amelioration of other symptoms. The belly became tympanitic, the sausage-shaped tumor increased in size, the general condition was critical. Enemas of warm water were given without avail; air was then continuously pumped in with a Higginson syringe. During this injection the boy towards the close shrieked from pain, and apparently the invaginated bowel was reduced. Shortly afterwards he had free movements, the first containing blood and a little fæcal matter, the second fæcal matter and blood, and the third fæcal matter only. From this time on he rapidly convalesced.

REVIEW OF THE RESULTS OF THE OPERATION OF VAGINAL HYSTERECTOMY AND SUPRAVAGINAL AMPUTATION OF THE CERVIX FOR CANCER OF THE UTERUS.

JESSETT (*Medical Press and Circular*, No. 2809, vol. lv., new series) states that the immediate mortality, after total extirpation of the uterus by Continental surgeons, is reported to have decreased to about 10.5 per cent. as a general average, while certain operators claim to reach a death-rate as low as three or four per cent. The dangers attendant upon vaginal hysterectomy are: Intestinal obstruction from adhesions to the raw surfaces, especially frequent when forceps are used to control hemorrhage; division of the ureter, or its inclusion in the ligature or forceps applied to arrest hemorrhage; the formation of vesico-vaginal or recto-vaginal fistulæ; peritonitis; sepsis and hemorrhage.

In regard to the mortality of the operation, this varies in accordance with the method of calculating the statistics. Thus, Post, in a collection of seven hundred cases, gives a mortality of twenty-four per cent. Martin states that, in so far as the radical cure of the cancer is concerned, of two hundred and fourteen patients operated on by himself and others, only five were living at the end of four years, and, moreover, believes that one hundred women will live a greater aggregate of years if left alone than if subjected to hysterectomy.

Byrne strongly advocates the high operation performed by means of the galvano-cautery, and claims out of four hundred cases not to have lost a single case from operation.

Lewers reports nineteen cases operated on by the cautery, with no deaths.

Jessett reports twenty-four cases, with only one death, and fifteen free from the disease at periods varying from one to three years.

Gusserow states that supravaginal amputation by means of the cautery gives a lower mortality than when the knife is used.

TREATMENT OF GONORRHŒA.

JONATHAN HUTCHINSON (*Lanphear's Kansas City Medical Index*, March, 1893) gives the following treatment of gonorrhœa. His prescription is a partnership of three different remedies, and it is important that they should all be used.

First, an injection of a solution of chloride of zinc (2 grains to the ounce); next, sandalwood-oil capsules; and, lastly, a purgative night dose, with bromide of potassium. The injection is used three or four times a day, the capsules (10 or 20 minims) taken three times a day. The ingredients of the night dose are three drachms of Epsom salts and a half-drachm of bromide of potassium. It is the action of the last named in preventing congestion of the parts which makes the abortive measures safe.

Moderate purgation and entire abstinence from stimulants are essential. If the case is very acute, and attended by swelling of the corpus spongiosum, tartar emetic or tincture of aconite is well prescribed, but it is very seldom indeed that these are necessary. If the patient be well purged, there is no risk whatever in an abortive treatment from the day he comes under treatment. The risk of orchitis, prostatitis, cystitis, etc., comes in cases which have been allowed to develop rather than in those treated abortively. Hutchinson states that he would as soon think of delaying to use local measures in gonorrhœa as he should in purulent ophthalmia.

KOLPOCYSTOTOMY IN RELATION TO CHRONIC CYSTITIS IN THE FEMALE.

CROOM (*Practitioner*, vol. l., No. 2) calls attention to the fact that few conditions, if any, short of malignant disease are less amenable to treatment than chronic cystitis in the female. He strongly protests against the use of opiates, which, he believes, in place of affording relief, aggravate the patient's distress by interfering with her secretions, disorder her digestion, and render her already distressing condition an absolutely hopeless one.

The treatment of chronic cystitis should be purely a local one. The principles upon which

such a treatment should be founded are: First, antiseptic treatment of the mucous membrane, and, second, continued rest to the hypertrophied muscular coat. For the first, irrigation with some antiseptic solution will in most cases diminish the amount of pus, mucus, and blood, and improve the condition of the urine. No form of antiseptic is better for this purpose than warm solution of corrosive sublimate (1 in 3000 or 4000). To be of any service, however, the irrigation should be conducted for at least half an hour three times daily. Boric acid is a suitable substitute to alternate with this. In irrigating it is well to distend the bladder each time to the full extent the patient can bear, so as to bring the solution in contact with the whole of the corrugated mucous membrane, as well as to stretch the muscular fibres to their utmost extent. This washing out of the bladder, to be of any use in a case of chronic cystitis, must be persisted in for weeks, and where the kidneys are not involved as a sequel to cystitis, the improvement in the patient's urine and general condition is very marked. The frequency of micturition will probably also be diminished.

Notwithstanding this frequency of micturition, which is, of course, a well-recognized and important factor in cystitis, it is still true that, with the improvement in the mucous membrane, and with the diminution of pus and mucus, the general health of the patient improves *pari passu*.

For relief of the congested and swollen mucous membrane, free depletion has been found useful by the application of leeches to the anterior vaginal wall. The writer states that this method has been particularly successful in two cases of chronic cystitis of many years' standing.

With regard to the second principle involved in treatment,—namely, rest to the thickened and irritable muscular tissue,—various methods have been suggested. First, dilatation by means of bougies or dilators, of which the best are those of Simon. So far as his experience of this method of treatment is concerned, the author states that he has found it useful and even curative in subacute cases where the paralysis of the sphincter lasts only for a day or two, that short time being sufficient to give the desired relief.

There is one class of cases, however, in which this treatment is not only of no avail whatever, but is absolutely disastrous,—that is, those cases where the disease is tuberculous. In such cases dilatation, even when confined within the limits of safety,—namely, to the size of a forefinger in the adult and of a little finger in the child,—is apt to produce, and in the writer's experience has invariably produced, permanent incontinence; and this condition more rapidly impairs the health and strength of the patient than the frequent micturition of cystitis. In recent and subacute cases, however, there is no doubt that rapid dilatation of the urethra and temporary rest to the bladder give excellent results.

Croom states that artificial vesico-vaginal fistula has, since its first description, obtained no marked following in England and Europe generally, although in America it has been largely adopted in the treatment of chronic and grave cases of cystitis which are intractable to other remedies.

The results obtained are in the main favorable; nevertheless, it must be confessed there are many cases in which no permanent benefit ensues. A certain number of cases have been recorded in which a perfect cure has been obtained, at least for all functional purposes. Such, for example, is the case described by Bozeman, where, after an unsuccessful attempt to close the fistula at the end of five months, the patient was sent home to the country to recruit her general health, returning at the end of a year greatly improved in appearance; the fistula was then successfully closed. After a lapse of nine years her medical attendant reported that she still continued completely cured and able to do a heavy day's work. Voluntary power over the bladder was perfect, and a full collection of urine could take place. As frequently, perhaps, the capacity of the bladder never regains its normal dimensions, although the lining membrane takes on a healthy character.

Even in the cases, however, where a permanent drain is established, the patient generally remarks that her condition is greatly improved, and some patients have preferred the discomfort of an open fistula to enduring the agonies of a returning cystitis after closure.

The author reports four cases which were markedly improved by this operation. In the last case atrophy of the bladder took place, so that its capacity was reduced to almost *nil*, and the ureters, bladder, and urethra were practically one continuous tube.

TONSILLOTOMY.

MACKENZIE (*British Medical Journal*, March 25, 1893) reports two hundred and thirty cases of tonsillotomy, the greater number performed on children from six to ten years of age. The

indication in children is usually chronic enlargement, in adults frequently recurring acute attacks of moderately enlarged tonsils; the chronic enlargement of infancy, attended by derangement of respiration, noisy, snoring, and choky respiration, and restless, disturbed sleep, having invariably been present. The general health was always indifferent or bad (aerial starvation); the chest was poorly developed. These symptoms, associated with chronic enlargement of the tonsils, were aggravated in many instances by certain concomitants, such as purulent rhinitis, post-nasal catarrh, and adenoid growths and enlargement of the pharyngeal tonsil,—conditions which necessarily required special attention, otherwise the results of tonsillotomy might have proved disappointing. In one hundred and fifty-seven cases both tonsils were removed; in the remainder (seventy-three) one only. The cases of single tonsillotomy were those in which one tonsil only was enlarged, or in which the recurring inflammations habitually commenced in one and the same tonsil. The single tonsil was more frequently the left than the right. It is a curious fact, without explanation so far, that most lesions of the tonsils, and of the larynx also, evince a greater tendency to commence on the left side than the right.

General anæsthesia (chloroform) was induced in nine cases, the ages varying from four to thirteen years. In two of these it was administered to allow of the second tonsil being removed, and in four it was a condition of the operation on the part of relatives. When it is remembered that one hundred and thirty-five patients were under fifteen years of age, it will be admitted that the number requiring general anæsthesia was small. Local applications of ten-per-cent. solutions of cocaine were made in most of the other children.

Profuse or troublesome bleeding never followed the operation. In the case of a man, aged thirty years, from whom a small irritable tonsil had been removed, some oozing of blood, which occurred on the second day, was readily stopped by the local application of a solution of the pernitrate of iron. Instances of persistent hemorrhage after tonsillotomy have been recorded in the medical press in numbers, and the writer states that he knew of a rapidly fatal hemorrhage in the practice of a brother practitioner. He believes, however, that hemorrhage will not occur if care be taken to leave a cleanly-cut surface, and if the faucial pillar or soft palate be not notched in the operation. It seems also that drinking warm fluids soon after the operation favors bleeding. Small children occasionally vomit blood which has been swallowed immediately after the operation. This vomiting may be deferred for hours, and sometimes causes alarm to the relatives, unless they have been forewarned of the possibility of its occurrence.

In children the local and general results were, without exception, most beneficial, and the younger the child and the larger the tonsils so much the more satisfactory was the after-condition of the patient. In two cases only (males, aged seven and ten years) the tonsils re-enlarged, the one seven months and the other two years after the operation, and excision had again to be performed. In three adults the tonsillar stumps became inflamed in periods varying from three to fifteen months, and in one instance an acute abscess formed two years after the tonsils had been removed. It is right to remind the reader that in children these results in several instances were not attained by removal of the tonsils alone, but, in addition, by curetting or scraping the naso-pharynx and posterior nares, and galvano-cauterizing the anterior nares in cases in which obstruction of these regions existed. Such were almost exclusively under ten years of age, with the marked respiratory and other troubles already referred to, and in no single instance was there failure to give marked relief.

The operation did not appear to be quite so successful in regard to the removal of the deafness which occasionally accompanies tonsillar enlargement, though in some instances this was remedied, especially when the operation was supplemented by treatment of the naso-pharynx.

EXCISION OF THE RECTUM AND PART OF THE SIGMOID FLEXURE FOR MALIGNANT DISEASE.

PURCELL (*Lancet*, No. 3631, 1893) operated on a woman suffering from malignant disease of the rectum. The sphincter ani was stretched but left intact; the mucous membrane, one inch inside, was incised all around, as were also the muscular and serous coats, thus freeing the bowel about one inch from the margin of the anus. The rectum was now detached from its surroundings, and the posterior wall of the vagina was dissected off and stripped by means of the finger-nail and scissors. Continuing the blunt dissection upward for five inches, the peritoneum was opened and a straw-colored fluid escaped. Some further attachments of the recto-sigmoid mesocolon were divided, as also

other bands, thus releasing the bowel. The latter was brought down and delivered between the fingers. Two inches above the growth the gut was cut across with scissors. The end was clamped with a fine pair of torsion forceps, the parts were well douched and cleansed, and the vessels ligated. The upper end was then drawn carefully down without any tension and sutured with silkworm-gut sutures to the mucous membrane at the anus. A rubber drainage-tube was lodged behind the bowel, a pad of absorbent wool was secured by a T-bandage, and a morphine suppository administered. The convalescence was uneventful.

The piece removed measured twelve inches. From the anal extremity of the specimen to the lower limit of the disease was a distance of seven inches; the disease occupied three inches, and two inches of sound bowel were resected above.

RESECTION OF THE INTESTINE AND IMMEDIATE SUTURE IN GANGRENOUS HERNIA.

FRANKS (*British Medical Journal*, No. 1683, 1893) reported the case of a woman, aged thirty, who had an umbilical hernia of three months' duration. It became strangulated on September 22, 1891. Thirty hours and a quarter afterwards herniotomy was performed. The abdomen was found to be full of a gelatinous fluid associated with an ovarian tumor. The loop of intestine proved to be gangrenous. Nine inches and a quarter were excised, and the ends of the intestine immediately united by means of Gely's suture. The abdominal cavity was closed and a glass drainage-tube inserted, which was removed on the fourth day. The bowels acted regularly after the fifth day, and recovery was complete. Five weeks later the abdomen was again opened and the ovarian multilocular semi-solid cyst was removed. The sutured intestine was inspected. The union was perfect; the line of union could be felt as a thickening in the gut, but could not be detected by the eye. The author discussed (1) the coexistence of ascites with strangulated hernia, and (2) the treatment of gangrenous hernia. The various methods of treatment were reviewed, and the following were some of the conclusions formulated: Gangrenous hernia might be treated on one of two principles,—either by resection and immediate suture or by the formation of an artificial anus. The latter necessitated a secondary operation for its cure by the use of Dupuytren's enterotome, or by secondary resection and suture. To estimate the relative merits of these two principles of treatment, the death-rate of immediate resection and suture must be compared with the death-rate following the formation of an artificial anus, plus the death-rate of the secondary operation required for its cure. The death-rate in cases of gangrenous hernia treated by the formation of an artificial anus was 80.7 per cent. The death-rate of secondary resection and suture for the cure of artificial anus was thirty-eight per cent. The death-rate following the use of the enterotome was 7.3 per cent. The mortality which attended resection and immediate suture in gangrenous hernia was shown—in a table of two hundred and twenty published cases—to be forty-eight per cent. The author concluded that intestinal resection and suture should be the operation of choice in gangrenous hernia, and that simple enterotomy, followed by the formation of an artificial anus, should be reserved for special cases, and should be considered as an exceptional procedure.

Hutchinson, in discussing this paper, stated that he did not think oblique section was necessary in order to prevent stricture. He is distinctly in favor of performing resection, not at the side of the hernia, but through a second opening in the middle line.

Barker also preferred a median incision, but first removed all the gangrenous and dangerous parts through the hernial wound, temporarily closing the ends of the intestine with ligatures; he then resected them through a median incision. He criticised deductions from statistics on the ground that, in cases where an artificial anus is made, the situation is desperate, enterectomy being performed in the more favorable ones.

Bowlby believed that Franks had taken too rosy a view of the operation. From statistics gathered from the three large London hospitals by Berry over a period of ten years, it appeared that the mortality for all cases of strangulated hernia operated upon was forty-four per cent. Franks's statistics after resection were almost as good. The explanation of this is probably that all the unfavorable cases have not been recorded.

Smith held that the great obstacle to operation was the depressed condition of the patients, as a rule, before operation, making them unsuitable subjects for so prolonged a procedure. He did not approve of the use of Senn's plates.

Beck (*Medical Record*, vol. xliii., No. 14, 1893), in discussing this same subject, reports two successful cases of resection of the intestine for gangrene. Two other cases in which

an artificial anus was formed died, and one perished after simple reduction.

Kocher's claim of a death-rate of only fifteen per cent. after gangrenous hernias is quoted. The author advises against wedge-shaped excision of the mesentery. Rydygier's compressors are used in order to prevent any discharge of excrement during the operation; he prefers the Czerny suture and the single Lembert, using a second row at intervals of half a centimetre. He rejects the use of Senn's plates. Iodoform silk is better than catgut as a sewing material. The abdominal cavity is protected by antiseptic gauze; during operation the hernial ring is dilated as much as possible. The disinfection of the intestine resting outside of the abdomen is performed with a 1 to 2000 bichloride solution, succeeded by irrigation with sterilized water. He secures the area of intestinal suture to the abdominal ring by two catgut sutures, so as to enable the operator to find it in case symptoms of separation should appear, and the formation of an artificial anus can no longer be avoided. Iodoform wicks are placed in the corners of the wound, and over the final antiseptic dressing, consisting of iodoform gauze, rubber plaster and an ice-bag are applied. Nourishment is administered in the form of beef-tea and wine enemata, exclusively. The first two days the mouth is rinsed sparingly; the following five days hot water in teaspoonful doses is given by the mouth. In favorable cases the peristaltic action of the bowel is retarded by hypodermic injections of morphine.

A PLEA FOR THE OPERATION OF PARACENTESIS ABDOMINIS IN THE TREATMENT OF ASCITES.

FAULKNER (*Lancet*, No. 3631, 1893) states that a large number of cases of abdominal ascites should be treated as if the presence of the ascitic fluid constituted an actual disease, instead of being treated as though this were an incidental symptom. He holds to this opinion because ascites, no matter from what cause its presence may be excited, is a symptom of a grave and urgent nature, and is usually developed in the more advanced stages of the disease with which it is complicated. Because its presence causes pain and much unnecessary discomfort to the patients. Because any other modes of treatment, such as the administration of purgatives, diaphoretics, diuretics, absorbents, etc., are utterly untrustworthy and greatly add to the exhausted and debilitated condition of the patient. Because the operation of paracentesis abdominis is practically devoid of danger, and can be repeated several times on the same subject with advantage. Because the result of the operation benefits the patient and improves his general health, and thereby tends to augment the chances of curing his actual constitutional disease by subsequent treatment.

He reports twenty-one cases, the majority of them cases of splenic ascites. The indications for the removal of the ascitic fluid were usually dependent upon the additional symptoms caused by the mechanical pressure of the fluid on the thoracic and abdominal viscera.

The most important point in performing paracentesis is to secure the complete evacuation of the bladder immediately before operation. When the ascites is complicated with general anasarca the routine treatment consists in the direct removal of fluid from these regions by making innumerable surface-pricks all over the lower extremities and scrotum. This simple procedure, combined with the elevation of the feet, a suspensory bandage to the scrotum, and complete rest in bed in the recumbent position, gives most satisfactory results.

ELONGATION OF THE LIGAMENTUM PATELLÆ TREATED BY TRANSPLANTATION OF THE TUBERCLE OF THE TIBIA.

WALSHAM (*Lancet*, No. 3625, 1893) describes two cases of knee-trouble dependent upon elongation of the ligamentum patellæ.

The first occurred in a young patient, twenty-one years old. She complained of pain and difficulty in walking, and that she was liable to fall suddenly without warning, from the patella slipping over one or other condyle. The falls were so frequent and unexpected that she was incapacitated for her duties as a housemaid. The patella could be dislocated laterally on either condyle, and with the knee bent at an angle of 90° it could be pushed up over the condyles of the femur, so that its anterior surface looked upward instead of forward. The elongated ligament was shortened by transplanting the tubercle of the tibia, about one inch lower down the shaft. The wound healed by first intention, and when the patient was last seen the knee-joint appeared normal and the patella could no longer be dislocated laterally or pushed abnormally upward. The second case was in all respects similar, and was treated in the same manner.

Walsham believes that transplantation of the tubercle of the tibia is to be preferred to the excision of a portion of the ligament and a subsequent union of the cut ends by suture. He recently transplanted the posterior tubercle of the os calcis, with the tendo Achillis attached, for overcoming the elongation of the calf-muscles in paralytic talipes calcaneus.

A NEW METHOD OF TREATING OBLIQUE FRACTURES OF THE FEMUR WITHOUT SHORTENING.

KEETLEY (*Lancet*, No. 3625, 1893) describes an operation for the prevention of shortening and other forms of mal-union after fracture, especially oblique fracture of the long bones. It essentially consisted in the insertion of two pins of steel, thickly plated with silver, one into each fragment of the bone, not too near the fracture. Each pin has an arm at right angles to it. These two arms, lying outside the skin, are lashed together with silver wire after the fracture has been accurately adjusted. No incision is made, each pin being passed in through a simple puncture. The bones are perforated for the pins by means of a long brad-awl.

In one case treated in this way the pins were left *in situ* for six weeks. The operation should not be resorted to for ten days or a fortnight after fracture. Thus the surgeon will be allowed to see what results ordinary modes of treatment are likely to give, and there will be time for effused blood to be either absorbed or organized.

THE ABORTIVE TREATMENT OF BUBO BY THE WIELANDER METHOD.

This method consists of an injection of 15 minims of a one-per-cent. solution of the benzoate of mercury into the bubo, followed by compression. Wielander and Letnik succeeded in preventing suppuration in ninety per cent. of the cases treated.

BROUSSE (*Montpellier Méd.*, 1893, No. 7, p. 133) tried this method in five cases, and succeeded in only one. There is always a more or less marked local reaction, and generally a systemic disturbance, characterized by headache, fever, loss of appetite, and a general feeling of discomfort. Ducamp accounts for this as follows: The mercuric salt diminishes the resistance of the cells, allowing the microbes to increase and secrete more freely their toxic products, which products, entering into the circulation, cause the systemic disturbances.—*L'Union Médicale*, No. 27, 1893.

SOME USES OF ICHTHYOL IN GYNÆCOLOGY.

According to BLANC (*Revue de Thérapeutique Médico-Chirurgicale*, No. 4, 1893), the most important characteristic of ichthyol is its local action of vaso-motor constriction when applied to a mucous surface. It causes a rapid disappearance of hyperæmia and of the pain due to congestion, and seems to influence the congestions of the tissues underlying the mucous surfaces. For this reason Freund highly recommends its use in chronic metritis, parametritis and perimetritis, in salpingitis, in erosions of the os, and in pruritus of the external genital organs. He uses it externally and internally. Externally he applies a five-per-cent. solution of sulphichthyolate of ammonia in glycerin to the vagina by means of tampons, and rubs into the abdomen an ointment of equal parts of ichthyol and lanolin. He uses capsules containing 1.5 millimetres of ichthyol three times daily, and suppositories containing from 1 to 3 minims.

Unna highly recommends it in acute eczema and seborrhœa, and when there is local congestion of the skin. Weak solutions are more serviceable than strong ones.

Jadassohn has treated a number of cases of gonorrhœa with success by irrigations with a solution of ichthyol, a cure taking place in from one to three weeks.

Nils Osn-Gadde has used it internally with good results in chronic alcoholism, chronic gastritis, chronic rheumatism, gout, arthritis deformans (to relieve pain), and sciatica.

Damiens has found that it has properties analogous to cocaine when used hypodermically, and is very useful in neuralgia. He uses a three-per-cent. solution. On the other hand, Bouchareff, after many trials, has found it of no value as an internal medication.

SYPHILIS OF THE LIVER; EXPLORATORY LAPAROTOMY; CURE.

PIERRE DELBET (*Bulletin de la Société Anatomiques de Paris*, lxvii. an., 5me series, tome vi., 1893) reports the case of a child, two years and four months old, with a large tumor of the liver. No diagnosis was made, and an exploratory laparotomy was performed. The sur-

face of the liver was smooth and pale, with rosalate streaks. The subperitoneal glands were large and indurated. The liver was punctured in two or three places, but no fluid was found. The abdomen was then closed. From the third day after the operation the child began to improve, and by the end of two months and a half the liver had decreased to its normal size again. No antisyphilitics were given. Four months after the operation three gummata appeared on the skin, thus establishing the diagnosis of syphilis.

LEAD-POISONING FROM A BULLET IN THE TIBIA.

E. KUSTER and L. LEWIN contribute the following case (*Centralblatt für Chirurgie* for February 25, 1893):

The patient, aged forty-eight, clerk, was shot in August, 1870, the ball lodging in the head of the tibia. The wound healed without suppuration. Patient well until January, 1888, when he was subject to severe colicky pains in the epigastrium every two weeks, followed by loss of strength, emaciation, constipation, and slight jaundice. In August the patient was confined to his bed, and shortly after trembling of the hands appeared, and still later a distinct blue line on the gums. Lead was found in the urine, but no albumin. In January, 1889, the head of the tibia was laid open and scraped out. The bone was soft and infiltrated with gray and blue-black spots. No bullet was found. The symptoms of lead-poisoning gradually ameliorated, and by the middle of March, 1889, the colics and blue line on gums had disappeared.

ALUMNOL IN GONORRHŒA.

CASPAR (*Berliner Klinische Wochenschrift*, March 27, 1893) reports twelve cases of acute gonorrhœa in which the treatment consisted of an injection three times daily of a one- to two-per-cent. solution of alumnol; this injection was reduced to once daily as the symptoms disappeared. In eight cases treatment commenced from one to three days after the appearance of the secretions; in four from three to ten days. In seven of the cases a cure was effected at the end of five to six weeks,—*i.e.*, no discharge, and urine entirely free from shreds. In the other five cases the gonorrhœa became chronic.

In eight cases of chronic gonorrhœa treatment consisted of a one- to two-per-cent. alumnol solution applied by Guyon's method of instillation. One case was cured after four instillations. In the other seven the secretion was the same or more profuse after ten instillations.

In conclusion, he states that acute gonorrhœa is neither better nor worse treated by alumnol than by the remedies at present in use, and in chronic gonorrhœa it is inferior to nitrate of silver.

From the results in twelve cases of chronic urethritis (no gonococcus present) he concludes that its action on the mucous surface is superficial and inferior to nitrate of silver. But he agrees with Chotzen that the injections of alumnol are entirely painless, and never cause cystitis. The external application of alumnol in gonorrhœal epididymitis and the injection in gonorrhœal bubo had little or no effect.

In two cases of chancroid (soft sore) the application of alumnol brought about a speedy cure.

VAGINAL LIGATION OF A PORTION OF THE BROAD LIGAMENTS FOR UTERINE TUMORS OR HEMORRHAGE.

MARTIN (*American Journal of Obstetrics*, April, 1893) proposes the procedure heading this extract. He reports in detail two cases in which he employed this method within a month of publication of his paper, with favorable results up to the present time.

The idea of this operation was suggested to him while making an examination of a large bleeding fibroid, in which the uterine arteries were bleeding furiously into the tumor. He believes that a large amount of blood may be shut off from the bleeding masses by throwing a strong ligature around these comparatively superficial blood-channels.

The two principal objections to this operation are, first, that there is such intimate anastomosis between the uterine artery and the spermatic or ovarian artery above that a compensatory supply of blood would soon be derived from that source. The author meets this objection by the fact that the compensatory supply of blood must come from a much smaller artery, deriving its blood in a single channel from a long distance; again, that the nerve-supply to the trunks of the two arteries are comparatively widely separated, hence by the time the nervous mechanism communicates

the fact of uterine anæmia, the abnormal growth is changed in nutrition, atrophy beginning, thus saving blood. Second, inability to ligate the main artery far enough away from the uterus to prevent collateral circulation from branches given off farther back. This objection is met by the fact that the surgeon is able to ligate the trunk of the uterine artery far enough away from the uterus to include its uterine branch; or he can ligate the uterine artery, including *en masse* the whole base of the broad ligament, shutting off all possibility of anomalous branches, should they exist.

An interesting *résumé* of the methods of various gynæcologists in ligating the uterine artery follows.

The result Martin aims at is the ligation of more or less of the broad ligament with its vessels and nerves, the extent of the ligation depending upon the ultimate object, from a simple ligation of the base of the ligament, including the uterine arteries and branches of both sides, without opening the peritoneum, to a complete ligation of the ligament of one side, including both uterine and ovarian arteries, with partial ligation of the opposite ligament, without opening the peritoneal cavity, if possible, but doing so, if necessary. Further, checking hemorrhages of the uterus by cutting off blood-channels, and changing the nutrition of the uterus by interfering with its nerve-supply, with the idea of modifying neoplasms which depend upon that organ for their nourishment and growth.

The two patients upon whom this operation has been tried were prepared as for a vaginal hysterectomy. They were put upon a laparotomy diet for two days before operation, and the bowels were thoroughly washed out with enemata. Besides the ordinary general bath and the antiseptic bath on the morning of operation, the external genitals and the vagina were thoroughly cleansed with soapsuds, shaved, and rendered aseptic by douching, etc. After being anæsthetized the patient was placed in the exaggerated lithotomy position, as in vaginal hysterectomy, with an assistant on either side to support the limbs and hold the retractors. A broad, short vaginal retractor, above and below, exposed the cervix, which was transfixed with a strong silk ligature, to be employed in handling the uterus. Before securing this ligature, gauze was packed into the cervix to absorb secretions from the uterus, and the ligature tightened to retain it. The broad ligaments were put to the stretch by pulling the uterus down; this was then drawn to the right side, exposing the left vaginal vault. The mucous membrane of the vagina at the utero-vaginal fold on the left was then caught with a tenaculum and incised with a pair of curved scissors. One blade was allowed to enter, making a curved incision one and a half to two inches long over the broad ligament and at right angles to it. By means of the index-fingers of both hands the vaginal tissue was separated from the broad ligament, and the latter carefully parted from the bladder for a height of two inches and laterally for nearly the same distance. In this way the dangers of wounding the bladder are avoided, and by pushing the separation laterally the ureter is forced out of reach. The broad ligament was then separated posteriorly to the same height as in front, without penetrating the peritoneum. Passing one finger behind, the other in front, the whole base of the broad ligament, representing two-thirds of its width, was grasped an inch to an inch and a half from the uterus. In this way the throb of the main trunk of the uterine artery and several branches can be plainly felt. A curved pedicle needle, threaded with No. 12 braided silk and guided by the index-finger of the left hand, was passed behind the broad ligament, well up beyond all pulsating vessels. Next, the same finger guiding the point of the instrument, the broad ligament was penetrated. The ligature was drawn through, the needle removed, the broad ligament firmly tied one inch from the uterus, and the ligature was cut short, leaving it well buried in the tissues of the ligament. The opposite side was treated in the same manner, the vagina was well irrigated with bichloride solution, and the vaginal incisions accurately approximated with fine catgut, completely burying the silk. The handling-string in the cervix was removed and the vagina packed with iodoform gauze.

The after-treatment was simple, consisting of the removal of the gauze on the third or fourth day, followed by antiseptic douches. The vaginal wounds cicatrized by the end of the week.

In conclusion, the author believes this operation to be peculiarly adapted to the following conditions:

1. Acute hemorrhage of the cervix from all acute or chronic causes which cannot be readily controlled by milder methods, as (*a*) rupture of the cervix in childbirth, from operation or from any other cause; (*b*) cancer of the cervix.

2. Hemorrhage from the body of the uterus as a result of abnormal growths: (*a*) fibromyoma, (*b*) sarcoma, (*c*) carcinoma, (*a*) intractable hemorrhagic endometritis.

3. For the purpose of changing the nutrition of myofibromatous tumors, so that they will shrink in size and, when of small dimensions, disappear altogether.

A NEW OPERATION FOR PARALYTIC TALIPES VALGUS.

PARRISH (*New York Medical Journal*, vol. lvi., No. 15) describes an exceedingly ingenious operation for the cure of the deformity and disability incident to paralytic talipes valgus. He calls attention to the fact that heretofore the deformities resulting from complete paralysis of various muscles have been those which have been least amenable to treatment without the continuous use of some mechanical support. They have been the ones which have given the surgeon the most bother and trouble and the patient the least hope of a cure.

Such deformities usually result from anterior poliomyelitis or infantile paralysis. As a rule, a number of the muscles which are thus paralyzed in infancy recover their power more or less completely after a longer or shorter time. In some instances the recovery is complete. The muscles of the lower limbs are those most frequently affected by this disease, the muscles of the leg being more frequently involved than those of the thigh. Of the leg muscles, the anterior and posterior tibials, the muscles of the calf, and the peroneals are, in the order named, the most frequently affected.

In a large majority of cases of talipes valgus, the extensor proprius pollicis is unaffected.

Parrish states that he believes that in not more than two or three per cent. of the cases where the anterior tibial is paralyzed is the extensor longus pollicis also involved. Basing his new operation upon this fact, the idea was suggested that the strong extensor pollicis might be able to bear part or all the burden of its weaker neighbor. Accordingly a series of experiments were performed on the cadaver. The foot was placed in the position of inversion and extension and sewed, the shortened tendon of the first to the lengthened tendon of the latter. First the two tendons were sewed together above the annular ligament, then placing the foot in the position of extreme eversion by pulling upon the belly of the extensor pollicis muscle, when the foot returned from its everted position, the arch was raised, and the great toe was extended. In subsequent experiments the tendons were sewed together below the annular ligament, the probable functional result being the same. Each time after the extensor pollicis had done the duty of the anterior tibial it resumed its own function. The operation was performed on one patient. An incision was made extending from the annular ligament three and a half inches upward. Both the tendons were found and isolated. The tendon-sheaths were cut away, and the foot was inverted and extended so as to shorten up the tendon of the anterior tibial and pull down the tendon of the extensor pollicis. The opposing tendon surfaces were then freshened with a knife, and sewed together with catgut suture for a space of an inch or more, and the wound was closed. The foot was then moulded into the proper position, and retained there by a plaster-of-Paris bandage, which was worn for a month. Since the operation the child had two more attacks of paralysis, hence the final outcome of the case cannot yet be recorded.

In some cases a better result can be obtained by cutting off the tendon of the extensor pollicis and sewing it on to the common extensor of the toes, and then cutting the anterior tibial tendon and uniting the proximal end of the extensor pollicis to the distal end of the anterior tibial, thereby allowing the extensor pollicis only the function of the anterior tibial muscle. In cases where the posterior tibial is also paralyzed it may be necessary to sew its tendon fast to the tendo Achillis. The important principle of grafting tendons and having a live muscle to do the work of a dead one is that which the author particularly wishes to establish.

If in any case the deformity is not readily reducible, it should be made so before any operation is done upon the tendons. This is the cardinal point in reaching successful results.

ACTINO-MYCOSIS CURED BY IODIDE OF POTASSIUM.

MEUNIER (*Revue Médico-Chirurgicale*, 60 année, No. 7, 1893) observed a case of actinomycosis, the disease appearing in the form of a dense phlegmon, attacking the cervical region. Before ascertaining the true nature of the tumor, iodide of potassium was administered, 25 grains a day. The result of this treatment was cure of the patient, so that Meunier agrees with Thomassen in the belief that the iodide is a specific against this disease.

THE CURATIVE AND PREVENTIVE ACTION OF MERCURY AND IODIDE OF POTASSIUM.

MAURIAC (*Journal de Médecine et de Chirurgie Pratique*, tome xliv., 64 année, 4 series) holds that the two drugs most powerful in the

treatment of syphilis do not realize the conditions essential to entitle them to be named as specifics, though they are incontestably superior to all other remedies which have been employed against syphilis.

Their curative action is often wonderful, and can usually be implicitly relied upon when the drugs are given in accordance with the recognized clinical manifestations of the disease. In their preventive action, however, they are less satisfactory. This action is feeble, superficial, and transitory, since the outbreaks of the disease seem to be prevented not at all by the prophylactic treatment. There is only one condition under which this preventive action has proven satisfactory,—that is, when administration of the specifics prevents hereditary transmission of the disease from the husband or wife free from apparent manifestations. Daily experience demonstrates that mercury neutralizes the latent infection of the spermatozoa, of the sperm, the ovule, and the blood which occasions hereditary syphilis. This, again, however, seems to be transitory, since after treatment and apparent cure hereditary transmission may appear latent and the parents themselves may be attacked by recurrences. It cannot be doubted that there is a tendency towards spontaneous cure in syphilis. Since well-directed treatment cannot injure the system, since it powerfully aids this tendency to spontaneous cure, the disease should never be abandoned to its spontaneous evolution. Whatever be the degree, form, tendency, or age of syphilis, it should always receive specific treatment. This is especially so when the disease is in its active state; medication should be directed not only against manifestations of the disease, but against the diathesis. Under these circumstances (the absence of symptoms) medication must be conducted somewhat by guesswork. Admitting that the syphilitic diathesis may be present, and admitting the value of the administration of specifics against this diathesis, the logical deduction would be to administer specifics during the entire period of life after syphilis is once acquired. This, however, is an unnecessary extreme, abandoned by its one-time most enthusiastic advocates.

Mauriac believes that the best preventive results from the specifics are to be obtained by pushing their curative action as far as possible each time manifestations appear. The indications under these circumstances are clear and direct, and the dosing should always be full. In the intervals, when no external signs of syphilis are to be found, the mercury can be suspended until new developments require its administration. Mauriac believes that during the periods of latency the administration of a specific is without good effect, excepting as a means of preventing hereditary syphilis. Here mercury is incontestably the strongest guarantee against the chance of transmission of the disease.

INJECTIONS OF SUBLIMATE IN PURULENT ARTHRITIS.

RENDU (*Revue Médico-Chirurgicale*, 60 année, No. 7) reports a case of purulent arthritis cured by injections of sublimate; the patient a woman suffering from acute arthritis, with grave concomitant symptoms for fifteen days. There had been a preceding osteomyelitis, and the patient was also suffering from leucorrhœa. The leg was splinted for two days, after which half a pint of pus was aspirated from the joint. Careful examination showed that there were no fungosities. A small quantity of corrosive sublimate (4 to 1000) was injected into the joint. The same evening the temperature became normal and the general symptoms greatly improved, but the effusion of the joint became more marked and required removal by aspiration eight days later. The aspirator now drew off pure serum. There was no further evacuation, and the cure was complete. Microscopic examination failed to show the presence of micro-organisms, but cultures upon blood-serum revealed the presence of a microbe identical with the gonococcus.

STRICTURE OF THE URETHRA IN WOMEN.

GLENOWVILLE (*Revue Médico-Chirurgicale*, 60 année, No. 7), after calling attention to the extreme rarity of clinical observations on stricture of the urethra in women, states that the first point in treatment is the exclusion of the presence of tumors obstructing the urethra by pressure. Next the presence of cystitis and calculus must be eliminated. Both are much more commonly causes of frequent micturition, pain, dribbling, etc., than stricture. Bulbous bougies are used for exploration, and usually the narrowing is found in the anterior third of the urethra, near the meatus. In some cases the vaginal touch will show a cicatricial hardening about the seat of stricture. Gradual dilatation is the best treatment, although in some cases internal urethrotomy will be required.

TRAUMATIC TETANUS CURED BY AMPUTATION.

CHAUVEL (*La Tribune Médicale*, 2 series, No. 13) reports a case of traumatic tetanus cured by amputation. A soldier occupied in

the care of horses fell on the ground, and suffered as a result luxation of the second phalanx of the first, together with a contused wound; the injury was cleansed and dressed antiseptically, and appeared entirely cicatrized, when, on the tenth day following the accident, characteristic symptoms of tetanus developed,—*i.e.*, stiffness of the arm, trismus, opisthotonos, and fever. The finger was amputated at once, and full doses of chloral and morphine were administered. The patient recovered. An examination of the ground on which the soldier had fallen, likewise the serum escaping from his wound, showed the presence of tetanus bacilli. Inoculations in animals were equally successful, and urine passed by the patient during the height of his disease produced tetanus in guinea-pigs. The amputated finger was examined. Beneath the apparently healthy cicatrix was found pus and gravel, in both of which tetanus bacilli were found.

Feraton ascribed the cure absolutely to amputation, and proves himself sceptical as to the value of medical treatment. He holds that in such cases the micro-organisms remain localized, to an extent at least, and where this operation does not immediately endanger life, it should be performed at once upon the first symptoms.

Delorme advises as an apppropriate treatment for tetanus vigorous curetting of the wound when amputation is impossible. Thus he was able to save one case of tetanus resulting from the penetration of a splinter of wood into the thigh.

THE REMOTE RESULTS OF LAPAROTOMY PRACTISED FOR THE CURE OF LOCAL PERITONITIS.

PICK (*L'Union Médicale*, 47 année, No. 36, March, 1893), after having collected one hundred and thirty cases of tubercular peritonitis treated by laparotomy, previous to 1890, states that intervention is useless in acute miliary peritonitis. In the dry ulcerative form of the disease no crusts are reported; in the suppurative ulcerative form nearly forty-three per cent. are cured; in the dry fibrous form over seventy-one per cent. are cured; in the generalized ascitic form over seventy-three per cent. are cured; in the encysted ascitic form over ninety per cent. are cured.

Beaussenat examined five of the cases found in Pick's tables several years after the operation was performed, and in all found that cure was permanent. In one of these cases, a young girl of eighteen, operated on in October, 1890, the abdominal cavity contained over three quarts of liquid and many granulating foci, varying in size from a millet-seed to that of a finger-nail, bright red in color, projecting, and surrounded by an inflammatory aureola. A fragment of the peritoneum was inoculated on a guinea-pig, and the latter died of the typical symptoms of inoculation with tuberculosis. Two years later the patient presented herself quite cured of her tubercular trouble and suffering from a hernia, for which radical treatment was advised. On opening the abdominal cavity, neither effusions, adhesions, nor tubercular granulations were found. A fragment of the peritoneum inoculated upon a guinea-pig produced no results. There is now produced, as a result of operation, an extremely vascular inflammatory exudate, which, covering the inflammatory areas as a pseudo-membrane, retracts and occasions sclerosis of the tuberculous parts.

Beaussenat admits that in cases of generalized fibrous ascites laparotomy gives in the adult about seventy-two per cent. of cures, among which about fifty-three per cent. will probably be durable.

There are three contraindications to intervention,—high fever, extensive or rapid pulmonary or pleural tuberculosis, and tubercular enteritis. The abdominal incision is an essential element in obtaining curative results. Drainage should not be employed.

THE TREATMENT OF GONORRHŒA WITH CHLORIDE AND IODIDE OF ZINC INJECTION.

GLENN (*Journal of Cutaneous and Genito-Urinary Diseases*, vol. xi., No. 127) reports twenty-four cases treated by an injection made up of chloride of zinc half a grain, iodide of zinc one grain, water one ounce. The discharge from all these cases was examined and the presence of gonococci demonstrated. The length of time that elapsed from the beginning of treatment until all evidence of the disease had disappeared, and after which no relapse occurred, was as follows: Two in three days, one in four days, two in five days, three in seven days, one in eight days, one in nine days, one in ten days, one in twelve days, one in thirteen days, two in fifteen days, two in seventeen days, one in eighteen days, two in forty days, one in fifty-five days.

The average length of time required for a cure was sixteen and seven-twenty-fourths days.

In the case that required thirty-six days, there was no pain nor inconvenience for the last twenty-five days. There was a drop of whitish discharge in the morning and about two o'clock in the afternoon, but at no other time. The patient only urinated on rising and at bedtime.

In one case that required forty days, the patient had been suffering for three weeks and had just recovered from gonorrhœa orchitis when first seen. A considerable portion of the time elapsed before the zinc injection was begun, which had to be suspended one week during a second attack of orchitis, the actual use of the injection being only about twenty days. In the other case requiring forty days, the patient was apparently well on the twelfth day, but had sexual intercourse that night, which set up considerable inflammation, requiring twenty-eight days longer to completely remove it. The case requiring fifty-five days had naturally a very small urethra, which would admit no larger instrument at any point than a No. 11 American Scale. Irrigation was practised three times and nitrate of silver (five-per-cent. solution) applied to deep urethra before patient recovered.

Of course, in many cases injecting in the ordinary way by the patient will not be sufficient, but in the great majority of cases even this method will afford a more speedy relief than any other treatment; and in the small per cent. of cases that are difficult to cure (requiring thirty or forty days), there is seldom anything to annoy the patient after the first five or ten days, save a slight discharge. The frequent micturition, ardor urinæ, and excessive discharge yielded very rapidly. If injecting in the ordinary manner does not cause rapid improvement, the urethra should be thoroughly irrigated with hot water and then with the zinc injection once in twenty-four hours.

SOME MISTAKES IN THE USE OF INTRA-VESICAL INJECTIONS IN THE TREATMENT OF THE CYSTITES OF PROSTATICS.

ALEXANDER (*Journal of Cutaneous and Genito-Urinary Diseases*, vol. xi. No, 127) states that in an inflamed bladder sensibility is increased both as to tension and to contact. Wherever there is a hyperæmia or a congestion of the bladder-wall, an injection beyond its capacity causes a painful and violent desire to pass water. The intravesical injections may do harm by increasing local congestion of the parts. An injection which causes pain or produces a desire to pass water, by distending the bladder increases the inflammation, and this is especially true when the injections are repeated frequently. Hence it may be stated as a general principle that in any of the cystites where the tension sensibility of the bladder is very acute and the capacity of the bladder greatly diminished, intravesical injections are absolutely contraindicated. Although the normal bladder has little contact sensibility, its reaction to irritating fluids is very marked, and is intensified in nearly all cases of cystitis; strong injections, therefore, such as the bichloride of mercury solution, may increase the inflammation by causing congestion. The vesical spasm, which sometimes remains after injection, should be regarded as a contraindication. The use of soothing injections, and of those intended to produce a local anæsthesia of the bladder, though general, is based, however, on a false idea of physiology. The drugs commonly employed are cocaine and opium in some of its forms. Under no circumstances should such injections be used in the cystites of prostatics as a mode of treatment, for the pain in these cases is not due to the contact of the urine, but to an increase in the tension sensibility of the bladder, and the same is true in regard to micturition. To anæsthetize the inner surface of the bladder, therefore, has no effect upon the pain or frequency.

The treatment *par excellence* for ammoniacal decomposition is the dilution of the urine. The ingestion of large quantities of fluids is indicated in these cases; the internal administration of antiseptics, such as naphthalin and the oil of wintergreen, is also recommended. Pus in the urine will also occasion incontinence if the entrance of microbes into the bladder is prevented, or irrigation of the urethra and simple evacuation.

Taylor agreed with Alexander that the habitual use of cocaine in the treatment of the bladder is highly injurious, and called attention to the fact that even though copious injections seem to irritate, much good could be accomplished by employing only small quantities of antiseptic solution.

TREATMENT OF VARICOSE VEINS.

SWEETNAM (*Canadian Practitioner*, vol. xviii., No. 4) contributes an extremely practical article upon this subject. Among the other and commonly recognized causes of this affection, he calls attention to walking heavily upon the heel as an important factor in dilating the

veins. The centrifugal impetus acquired by the blood during the early portion of the step, when the heel is brought abruptly upon the ground, is thrown upon the valves and then upon the vein-walls.

In systematically taking up the surgical treatment, he first considers the subject of bandages, and prefers to all others cotton or flannel cut upon the bias. Stockings are also extremely serviceable, especially in the working-classes. These should be made of stout linen, laced down the front; the two edges are provided with eyelets, and one edge with a loose flap, which, passing behind the lacing, protects the skin from what might be a source of considerable irritation. If the varicosity extend above the knee, a small piece of the linen is cut out of that portion of the stocking which would correspond to the anterior portion of that joint. The thigh-piece of this stocking may take its support from an abdominal belt, or a waist, worn for the purpose. The front should be closed with three or four different pairs of laces, so that the pressure at any given point may be altered without interfering with the remainder of the stocking. A thigh-piece of real value is made of stout merino, in the form of a tightly-fitting belt.

Strapping is of service when the varicosity is confined to a small portion of a single vein or to a circumscribed bunch. These strips are applied at right angles to the greater diameter of the bunch, and are removed at night. They prevent distention and relieve pain.

Massage is particularly serviceable in œdematous cases, and where pain is so severe that exercise is not possible.

The radical treatment aims at the obliteration and removal of the altered veins. This is accomplished either by subcutaneous ligature or by excision. The ligatures are introduced as follows: The selected vein with its surrounding skin is picked up between the thumb and forefinger, and the needle (armed with a ligature) introduced through the skin on one side. The eye of the needle is then opened and the ligature detached; the eye is closed again and the needle withdrawn. We have now a ligature passing from the point of entrance to the point of exit under the vein. The needle is now reintroduced (unarmed) into the same opening produced by the former puncture, and made to pass above the vein,—that is, between the vein and integument,—making exit at the point of exit produced by the first puncture. The eye is now opened, the ligature introduced into it, the eye closed, and the needle withdrawn. We now have the ligature around the vein, and both ends making exit from the same opening. All that remains to be done is to tie with a friction-knot,—one made by passing the end twice round the loop instead of once, and not liable to slip.

Trendelenburg, of Bonn, has recently urged ligature of the trunk of the saphenous vein for the purpose of reducing varices of the leg and healing varicose ulcers; but past experiences have made us sceptical of the permanent value of limited excision and partial operations generally.

Excision is, however, the best treatment in the cases calling for radical treatment. The operation is conducted as follows: The day before the operation the patient, placed in a sunlit room, is asked to stand upon a chair or table, and the saphenous vein, with all its enlarged branches, is traced through its entire course with a camel's-hair brush, moistened with a 20-grain solution of nitrate of silver in spirits of ether nitras. A few minutes' exposure to the sun will so fix it that any washing that is done preparatory to the operation will not render it much less distinct. The vessel in this way may be exposed throughout its entire course in less than five minutes with a degree of accuracy and ease not possible in any other way.

The limb is cleansed with ether and soap, and for some time before the operation packed in a wet carbolic dressing. The patient being etherized, the limb is rendered bloodless, and a tourniquet applied above the upper limit of the incision; the limb is again washed, a short incision is made some little distance above the length to be removed, and the vein divided here between two ligatures. In this way the proximal end of the vein is protected against any possible infection which might find its way into the larger wound. So far this precaution has never been necessary, none of the cases having been infected. A rapid incision is now carried over the entire length of the vein to be excised and down to it.

The skin-flaps being well turned back to enable one to follow the altered branches through the fascia and into the muscle, if needs be, are fastened with a few stitches, and the piece of vein to be removed is divided at its upper end. The dissection proper is then commenced, and this is the tedious part of the operation. The major portion of the work may be done with the back of the knife or a fine periosteal elevator, the branches encountered traced out beyond all appearance of disease, and tied off with strings or catgut (preferably that boiled in alcohol under pressure). Unless considerable care be exercised many of the smaller

branches will be torn, and some troublesome bleeding may result. The dissection having been completed and the veins removed, the tourniquet is slightly and cautiously relaxed and the bleeding points secured. This is best done by torsion with fine pressure forceps which include little more than the vessel in their bite, and are therefore less likely to produce destruction of the already somewhat devitalized tissue than one of a coarser pattern.

Before withdrawing the tourniquet a number of deep sutures should be inserted, passing under the wound and not appearing in it. These are not tied until the wound is being closed, but would effectively control hemorrhage from any branches which might have escaped the catgut ligature, and, drawn moderately tight, give the wound good support while healing. The superficial sutures are of stearin, sterilized silk, interrupted, and placed at the greatest distance compatible with perfect coaptation. The wound having been covered with a moist boracic-acid dressing, protected by gutta-percha tissue, the limb is placed upon a pillow, the sutures removed upon the seventh day, and the patient kept in bed for two weeks longer, and compelled to wear a flannel bandage for at least six months, to be removed upon the slightest indication of varicosity in any of the remaining vessels.

THE TREATMENT OF NON-MEMBRANOUS STENOSIS OF THE LARYNX IN THE ADULT BY O'DWYER'S METHOD OF INTUBATION.

SIMPSON (*Medical Record*, vol. xliii., No. 15) reports five cases of laryngeal stenosis successfully treated by means of intubation. In the first case the trouble is probably due to a stenosis due to a species of condylomatous growth of specific origin. The tube is introduced when dyspnœic symptoms become urgent. Under specific treatment the patient's condition rapidly improved. Recovery followed.

The second patient was in danger of suffocation from inflammatory swelling consequent on tuberculous ulceration. The tube was left in for six days, but was not well borne, producing cough, irritation, and some pain, with great distress on attempts at deglutition. Nevertheless, great comfort was experienced by the relief of suffocative symptoms. After removal of the tube there was ample room for breathing. The iodide of potassium in full doses brought about a cure. Twice again in the three succeeding years intubation was practised on this patient, each time with satisfactory results. The particular good effects of this method of procedure were apparent from the intralaryngeal pressure of the tube, which secured permanent separation of the infiltrated and movable cords. It is also probably a syphilitic case, although at first it closely simulated tuberculosis.

The third case was also one of syphilitic stenosis.

The fourth was one of bilateral paralysis of abduction, and the fifth one of stenosis following fracture of the larynx.

Simpson states that for general convenience a set of three tubes of various sizes will be found sufficient; the introducing and extracting instruments should be heavier and stouter than those used with the croup-tubes, in order to gain more force in passing the different strictures. The operation is liable to be difficult when the epiglottis cannot be easily controlled and an extra amount of force is to be exerted. Under such circumstances, though the entrance to the stricture is very small, or situated away from the median line, this increasing difficulty of inserting the tube, it may be well to try its introduction by the aid of a laryngeal mirror; but as soon as the tube enters the stricture the mirror must be dropped quickly and the forefinger of the mirror-hand transferred to the head of the tube to exert the proper pressure, and to hold it in place while the introducing instrument is being withdrawn. It is well to use medicated steam inhalations in order to prevent drying of secretions in the tube. Patients differ with respect to the amount of irritation produced by the tube; but, as a rule, it becomes better tolerated day by day. The difficulty in deglutition is the most troublesome feature to overcome. This may in a measure be effected by having the patient swallow while lying down, with the head lower than the rest of the body, or by leaning over a chair, or resorting to an œsophageal tube or rectal enemata. Removal of the tube is accomplished preferably by the aid of a laryngeal mirror.

VAGINODYNIA.

FROST (*Medical Record*, vol. xliii., No. 14), under this title, describes an affection which he considers as distinct from vaginismus, the latter implying only muscular contraction at introitus, while the former is applied to contraction along the whole vaginal canal. The clinical history of vaginodynia is that of a sudden attack of neuralgic pain throughout the female reproductive organs, without apparent adequate cause,—

an attack so severe, and with sharp lancinating pains so intense, that the physician is summoned as to an emergency. After a duration of several hours the pains gradually subside. Physical examination shows the abdominal muscles tense, and on examination of the vagina the introitus is found tightly contracted. Instead of classifying the case as one of vaginismus, and proceeding no further than this examination, it is well in these cases to press the finger backward with considerable force against the sphincter, introduce the finger farther in, progressing backward more and more powerfully; then, as soon as it is possible to do this, avoiding the cervix uteri as well as the anterior vaginal wall by drawing the whole pelvic floor backward. The pressure on the pelvic floor adds nothing to the pain, and the moment the latter is retracted, using the two fingers as a hook, the suffering ceases completely. If pressure is relaxed, the pelvic floor again contracts, and again a severe pain is experienced. Examination of the surroundings will show that it, too, is rigidly contracted.

The treatment has for its object relaxation of the perineal spasm. This is accomplished by introducing the fingers into the vagina, as already described; then, with the thumb, press externally against the lower end of the sacrum, and, acting as a fulcrum, stretching to its utmost extent the vaginal canal. This is to be held stretched for ten or twenty minutes, or until the perineal muscles are sufficiently tired out to prevent their contracting action. The relief of the patient is instantaneous. Other periodic attacks will certainly follow, but may be relieved in the same way. Such treatment causes, after but a few applications, an entire cessation of the recurrences of the spasms. Among the drugs in the interval fluid extract of quinine and fluid extract of belladonna are most serviceable.

Reviews.

AN INTRODUCTION TO DISEASES OF THE SKIN. By P. H. Pye-Smith, M.D., F.R.S.
Philadelphia: Lea Brothers & Co., 1893.

This book by Dr. Pye-Smith, who is well known to the profession in England and America as a skilful physician and dermatologist, is a reprint, with some variations and additions, of the chapters dealing with diseases of the skin which he wrote in 1886 to complete the unfinished work on medicine by Dr. Hilton Fagge.

While the book is, therefore, to some extent a compilation from other contributions which Pye-Smith has made to medical literature, it possesses certain advantages in the way of brevity and concise statement which will make it of value to those practitioners who in a brief space of time wish to inform themselves concerning the more recent views of dermatologists.

A very useful feature of the work is the introduction of diagrams of the human body, showing, by means of colors, the areas involved by certain skin-diseases. The book contains three hundred and ninety-two pages small octavo, is well bound, and is, as we have said, a credit to its distinguished author.

ELEMENTS OF HUMAN PHYSIOLOGY. By E. H. Starling, M.D., M.R.C.P. Illustrated.
Philadelphia: P. Blakiston, Son & Co., 1892.

Although this book bears the imprint of 1892, it has only just been received by the reviewer. While there are many points in it which are of value to the student, the book can scarcely hope to take a prominent place among the medical text-books used either in this country or abroad. It deals with the province of physiology in a somewhat different way from most of the other manuals, is much too brief for the ordinary medical student, and it is too deep for its useful employment in non-medical schools where it is the desire of the instructors that the pupils should have some knowledge of the human body.

Dr. Starling's book would be a useful purchase to accompany other works which do not contain descriptions of certain functions which he has rendered clear by lucid statement.

THE MEDICAL ANNUAL AND PRACTITIONER'S INDEX: A WORK OF REFERENCE FOR MEDICAL PRACTITIONERS. 1893. Eleventh year.
Bristol: John Wright & Co.
London: Simpkin, Marshall, Hamilton, Kent & Co.
New York: E. B. Treat.

The Medical Annual for 1893 opens with an article on the present status of therapeutics by Dr. H. A. Hare, the purpose of which, to quote the language of the writer, is to present a summary of how we stand in regard to the advantages which may be derived from the application of remedial measures to the cure of disease. It is a judicial review by one who has added much to our knowledge of the physiological action of new remedies and their

therapeutic value, and is worthy of careful consideration.

Part II. of the Annual comprises the major portion of the book, and contains the new treatment in medicine and surgery for the past year. The literature of medicine has been carefully culled, and the most important advances in general and special surgery and medicine are comprised within the five hundred pages which compose this section, many of which are freely illustrated, not only with wood-cuts, but with some excellent chromo-lithographs.

Part III. is devoted to sanitary science, new inventions, improvements in pharmacy, and dietetic preparations, and, like the preceding pages, contains many illustrations, chiefly cuts of new instruments.

A book which has reached its eleventh year does not need an introduction. It is a pleasure to commend it, because it contains a reasonable complete report of the progress of medical science.

HYDROTHERAPY AT SARATOGA. By J. A. Irwin. New York: Cassell Publishing Company, 1893.

This small octavo volume of two hundred and seventy pages, including the index, gives information concerning the value of Saratoga as a health resort, particularly in relation to its mineral waters. It is clearly written, the type is large, and the book well printed. The value of brief hand-books of this character, which describe the usefulness of our native mineral waters, cannot be overestimated. Unfortunately, many of American physicians know more about the value of foreign springs than of those which are scattered through the United States. We commend the book to those who wish for information upon this interesting and practical subject.

Correspondence.

THE EMPIRICAL USE OF COUNTER-IRRITANTS.

To the Editors of the THERAPEUTIC GAZETTE:

DEAR SIRS:—A short time since I received from a well-known firm a reprint of an article by Drs. A. H. and Frederic Laidlaw, entitled "Mustard in Therapeutics." While the article had an "advertistic" tinge, it called to mind that which I have noticed so frequently,—viz., the use of counter-irritants,—with altogether an erroneous idea as to how the benefit is to be derived. In speaking of where to apply these mustard-leaves, they say, "The popular rule—'put the plaster where you feel the pain'—is generally wrong, for when we irritate a spot on the skin we not only have a response from the parts which lie beneath, but the whole bulk of the blood in the body sets towards that point with the steady trend of an ocean current. This fact should always be remembered in applying counter-irritants." This reminds me of some lessons given to me two years ago.

I was called in consultation to a neighboring village to see a man with congestive chill. The attending physician, a man in middle life, had treated the case very satisfactorily, and when I arrived the chill had passed off. Upon examination I found a large mustard-plaster over the abdomen, and smaller ones, about two inches wide, around each wrist and ankle.

I innocently inquired what he thought the mustard would do. It was the first time I had met him, but the look of pity he gave me made me his friend. I could see that he attributed my lack of therapeutic knowledge to my tender age. In well-rounded sentences well delivered he taught me that to draw blood away from an engorged organ nothing equalled mustard. When I suggested that a congestive chill was due to depression of the vaso-motor system, and that the good effects were due to the *vis a tergo* rather than the *vis a fronte*, his pity assumed the disdainful type.

Drs. Laidlaw and Laidlaw say they use from three to five thousand of these leaves per month, so their clinical experience is to be envied. Nothing could be more satisfactory than the effects of mustard seen in inflammations of the thoracic organs and congestions of the abdominal viscera, but it should be used with a rational idea of what it is to do. It has been said that "he is a wise doctor who knows when to withdraw his remedies," and it is so with these agents particularly. If the irritation is kept up too long the irritability of the muscles of the vascular walls is lost, and the subsequent paresis is harder to overcome.

They claim to relieve cystitis and strangury by applications over the legs and bladder. Do they wish to start life's purple stream "like the steady trend of an ocean current" towards the bladder? Also painful flow and suppression of menses are relieved by "reddening" the legs. Would they turn the oceanic current from the pelvic organs for suppression? This is but the fortunate result of a rich experience, for red-

dening the legs with mustard is, in a measure, "bleeding a woman into her own blood-vessels," forcing the blood from the extremities to the organs higher up. Why shouldn't it be good for suppression?

This is in no wise intended for an essay on counter-irritants, but a faint expression of preference for rational theory rather than empiricism.

CLAUDE BRANNON.

THE TREATMENT OF DYSPEPSIA IN CHILDREN.

According to the *Journal de Médecine de Paris* for December 25, 1892, TORDRUS, of Brussels, recommends the following method of treatment:

The curative treatment of dyspepsia in children depends upon the rapid elimination from the diet of all foods which are capable of undergoing fermentation in the alimentary canal. It is also advisable to rid the gastro-intestinal tract, by means of emetics or purgatives, of any fermenting materials which may already be present. Emetics are, however, rarely required, as purgatives generally fulfil the indications. Indeed, lavage of the stomach is probably better than emetics. Purgatives are generally taken without difficulty, particularly if administered with pleasant syrups, or in other cases a little powdered magnesia may be given in a little sugar and water. Particularly useful, however, is the action of calomel as an antifermentative. This may be given in small doses with powdered white sugar. In some instances great advantage will be obtained from the use of hydrochloric acid, unless there is much vomiting. On the other hand, if the child is anæmic and debilitated and has an insufficiency of gastric juice, the vomited matters will frequently present an alkaline reaction, and the following formula will prove of advantage:

℞ Dilute hydrochloric acid, gtt. iii to v;
Pepsin, gr. v;
Distilled water, ℥iss;
Syrup, ℥ii.
A small teaspoonful after meals.

In some cases Hayem claims to obtain very good results from the use of lactic acid if, in association with the indigestion, there is present a greenish diarrhœa. Under these circumstances the lactic acid seems to exercise an antifermentative action. Benzoin acid, salicylic acid, and chloral are also medicaments which prove equally valuable in similar cases.

Hennoque has employed creosote if vomiting is present, as, for example, in the following formula:

℞ Creosote, gtt. ii to iv;
Distilled water, ℥i;
Syrup of althea, ℥iv.
A small teaspoonful every two hours.

The creosote possesses antiemetic properties, and frequently arrests the vomiting, not only of children, but also in pregnancy and in phthisis.

Frequently, however, the odor of the creosote is so disagreeable that it is difficult to force children to take it. Where the physician believes that there is a condition of hyperacidity of the contents of the stomach, he should administer alkaline substances, chiefly the bicarbonate of sodium dissolved in some one of the mineral waters, such as Vichy or Vals, as, for example, as follows:

℞ Bicarbonate of sodium, gr. iv;
Distilled water, ℥iss;
Syrup of orange-flowers, enough to flavor.
Two teaspoonfuls of this may be given every two hours.

Other authors recommend very highly the employment of lime-water in place of the bicarbonate of sodium or calcined magnesia. For violent colics, warm baths; and emollient cataplasms should be applied to the stomach, with frictions of camphorated oil. Internally it may be well to prescribe carminatives, such as phenol-water or camomile-water, associated with the subnitrate of bismuth, with syrup of anise. For the purpose of combating the chronic form of dyspepsia the following preparations are advisable, particularly if they are somewhat bitter. If constipation is present, the following may be employed:

℞ Powdered rhubarb, gr. iii;
White sugar, a sufficient quantity.
Divide into ten powders, and take three at one-quarter of an hour intervals.

Or,

℞ Tincture of cascarilla, gtt. x;
Distilled water, ℥iss;
Syrup, ℥iii.
A teaspoonful every two hours.

Or, again,

℞ Extract of cinchona, gr. iv;
Distilled water, ℥iss;
Syrup of orange, ℥iii.
A teaspoonful every two hours.